

DEVICE RUNNING METHOD, ELECTRONIC DEVICE, ORDER MANAGEMENT SYSTEM, AND STORAGE MEDIUM

TECHNICAL FIELD

[0001] This specification relates to the field of Internet technologies, and in particular, to a
5 device running method, an electronic device, an order management system, and a storage medium.

BACKGROUND

[0002] In some offline scenarios, when conducting services in stores, merchants can receive orders through point of sale (POS) terminals, and store and manage the orders through POS devices. For example, in the catering industry, a store of a merchant can include a front-of-house area, and
10 the front-of-house area can be used for consumers to order and have a meal.

[0003] One merchant can use a plurality of POS devices to conduct a service. In some service conduction scenarios, the merchant may expect different POS devices to have different permission for order management. For example, some POS devices need to support both an order placement function and a checkout function, and some other POS devices do not need to support the checkout
15 function, and need to support only the order placement function.

[0004] Currently, when purchasing a POS device from a provider, a merchant can require the provider to customize a function of the POS device, so that different POS devices have different order management functions. However, in this customization design, use of a plurality of POS devices by the merchant is not flexible enough, and an order management function of each POS
20 device cannot be adjusted based on an actual requirement.

[0005] Content in the background is merely information known to the inventor, and neither means that the information has entered the public domain before the application date of this disclosure, nor means that the information can become the existing technology of this disclosure.

SUMMARY

25 [0006] This specification provides a device running method, an electronic device, an order

management system, and a storage medium, so that a merchant can more flexibly use a plurality of POS devices, and a requirement for different POS devices to have different order management capabilities can be met.

[0007] According to a first aspect, this specification provides a device running method, applied to an order management system of a target merchant. The order management system includes a service device and a plurality of POS devices. At least some of the plurality of POS devices correspond to different roles. The method is performed by the service device and includes: receiving a configuration request from a first POS device, where the configuration request is sent by the first POS device to the service device in response to detecting a start instruction, and the first POS device is any one of the plurality of POS devices; determining a target role corresponding to the first POS device in response to the configuration request, and determining, based on the target role, target configuration information applicable to the first POS device, where the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device; and sending the target configuration information to the first POS device, so that the first POS device performs a start procedure corresponding to the start instruction based on the target configuration information.

[0008] According to a second aspect, this specification further provides a device running method, applied to an order management system. The order management system includes a service device and a plurality of POS devices. At least some of the plurality of POS devices correspond to different roles. The method is performed by a first POS device in the plurality of POS devices and includes: sending a configuration request to the service device in response to detecting a start instruction; receiving target configuration information from the service device, where the target configuration information is configuration information that is applicable to the first POS device and that is determined by the service device based on a target role corresponding to the first POS device, and the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device; and performing a start procedure corresponding to the start instruction based on the target configuration information.

[0009] According to a third aspect, this specification further provides an electronic device, serving as a service device and applied to an order management system. The order management system includes a service device and a plurality of POS devices. At least some of the plurality of

POS devices correspond to different roles. The electronic device serves as the service device and includes: at least one storage medium that stores at least one instruction set for managing order data; and at least one processor that is communicatively connected to the at least one storage medium. When the electronic device runs, the at least one processor reads the at least one instruction set, and performs the device running method according to the first aspect based on an indication of the at least one instruction set.

[0010] According to a fourth aspect, this specification further provides an electronic device, applied to an order management system. The order management system includes a service device and a plurality of POS devices. At least some of the plurality of POS devices correspond to different roles. The electronic device serves as a first POS device in the plurality of POS devices and includes: at least one storage medium that stores at least one instruction set for managing order data; and at least one processor that is communicatively connected to the at least one storage medium. When the electronic device runs, the at least one processor reads the at least one instruction set, and performs the device running method according to the second aspect based on an indication of the at least one instruction set.

[0011] According to a fifth aspect, this specification further provides a computer-readable non-transitory storage medium. The computer-readable non-transitory storage medium stores at least one instruction set. When the at least one instruction set is executed by at least one processor, the device running method according to the first aspect, the second aspect, or the third aspect is implemented.

[0012] According to a sixth aspect, this specification further provides an order management system, including a service device and a plurality of POS devices. At least some of the plurality of POS devices correspond to different roles. Any first POS device in the plurality of POS devices is configured to send a configuration request to the service device in response to detecting a start instruction. The service device is configured to: determine a target role corresponding to the first POS device in response to the configuration request, determine, based on the target role, target configuration information applicable to the first POS device, and send the target configuration information to the first POS device, where the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device. The first POS device is further configured to perform a start procedure corresponding to the start instruction based on the target configuration information.

[0013] Other functions of the device running method, the electronic device, the order management system, and the storage medium provided in this specification are partially listed in the following descriptions. Creative aspects of the device running method, the electronic device, the order management system, and the storage medium provided in this specification can be fully explained by practice or by using the methods, apparatuses, and combinations described in the following detailed examples.

BRIEF DESCRIPTION OF DRAWINGS

[0014] To describe the technical solutions in the embodiments of this specification more clearly, the following briefly describes the accompanying drawings needed for describing the embodiments. Clearly, the accompanying drawings in the following description show merely some embodiments of this specification, and a person of ordinary skill in the art can still derive other drawings from these accompanying drawings without creative efforts.

[0015] FIG. 1 is a schematic diagram of an application scenario 100 of an order management system according to an embodiment of this specification;

[0016] FIG. 2 is a diagram of a hardware structure of a computing device 200 according to an embodiment of this specification;

[0017] FIG. 3 is a flowchart of a device running method according to an embodiment of this specification;

[0018] FIG. 4 is a schematic diagram of application of a device running method to a catering scenario according to an embodiment of this specification;

[0019] FIG. 5 is a schematic diagram of an interaction interface of a POS device serving as a primary device role according to an embodiment of this specification; and

[0020] FIG. 6 is a schematic diagram of an interaction interface of a POS device serving as a secondary device role according to an embodiment of this specification.

DESCRIPTION OF EMBODIMENTS

[0021] Specific application scenarios and requirements of this specification are provided in the following descriptions, so that a person skilled in the art can manufacture and use content of this specification. Various local modifications to the disclosed embodiments are clear to a person

skilled in the art. In addition, the general principles defined herein can be applied to other embodiments and applications without departing from the spirit and scope of this specification. Therefore, this specification is not limited to the shown embodiments, but has a widest scope consistent with the claims.

5 **[0022]** The terms used herein are merely intended to describe specific example embodiments, and impose no limitation. For example, unless otherwise explicitly stated in the context, the singular forms "one", "an", and "the" used herein can include plural forms. When being used in this specification, the terms "include", "comprise", and/or "have" mean existence of an associated integer, step, operation, element, and/or component, but do not preclude existence of one or more
10 other features, integers, steps, operations, elements, components, and/or groups or addition of other features, integers, steps, operations, elements, components, and/or groups to the system/method.

[0023] In consideration of the following descriptions, these and other features of this specification, operations and functions of related components of the structure, and economy of combination and manufacturing of components can be significantly improved. With reference to
15 the accompanying drawings, all of these form a part of this specification. However, it should be clearly understood that the accompanying drawings are merely used for the purpose of illustration and description, and are not intended to limit the scope of this specification. It should be further understood that the accompanying drawings are not drawn to scale.

[0024] The flowchart used in this specification shows operations implemented by a system
20 according to some embodiments of this specification. It should be clearly understood that the operations in the flowchart can be implemented out of sequence. On the contrary, the operations can be implemented in a reverse sequence or simultaneously. In addition, one or more other operations can be added to the flowchart, and one or more operations can be removed from the flowchart.

25 **[0025]** For ease of description, the terms that appear below in this specification are first explained.

[0026] The embodiments described in this specification can be applied to an order management scenario of a merchant. The merchant can be merchants that provide various products or services, including but not limited to a catering merchant, a store, a supermarket, a fruit and
30 vegetable store, a flower store, a bookstore, a hotel, a beauty salon, a dry cleaning store, a barbershop, and the like. The merchant can be a small/micro merchant, a large merchant, a chain

merchant, or the like. This is not limited in this specification.

[0027] In some embodiments, the merchant can be a merchant that conducts a service through an offline channel (a physical store). In this case, an order of the merchant can include an offline order. In some embodiments, the merchant can alternatively be a merchant that conducts a service
5 through an online channel (the Internet). In this case, an order of the merchant can include an online order. In some embodiments, the merchant can alternatively be a merchant that supports service conduction through both an online channel and an offline channel. In this case, an order of the merchant can include an offline order and an online order.

[0028] In this specification, the online order refers to a product or service purchase request
10 submitted by a consumer through an online channel (for example, a website or an application). The offline order refers to a product or service purchase request submitted by a consumer through an offline channel, for example, a product or service purchase request submitted by the consumer and a cashier in a face-to-face manner.

[0029] When the merchant needs to conduct a service through the offline channel, the
15 merchant needs to purchase a point of sale (POS) device to manage the offline order. The POS device provides an interaction function and can display a product or a service sold by the merchant. Based on a purchase requirement of a consumer, a cashier of the merchant can help the consumer select a product or a service on the POS device and submit an order. The order is an offline order.

[0030] When the merchant conducts a service through the online channel, the merchant can
20 develop a store applet, and set an access entry (for example, a two-dimensional code) of the store applet in a store or at any other possible location. A consumer accesses the store applet through the access entry and submits an order in the store applet.

[0031] When the merchant conducts a service through the online channel, the merchant can further cooperate with different network platforms. The network platforms can include but are not
25 limited to a takeout platform, a wallet platform, a social platform, and the like. The merchant may interconnect with different network platforms in different manners. For example, when cooperating with some platforms (for example, the takeout platform), the merchant can apply to open an online store on these platforms, and place a product or a service of the merchant in the online store, so that a consumer places an order in the online store. For another example, when
30 cooperating with some other platforms (for example, the wallet platform or the social platform), the merchant can place the store applet on these platforms, so that a consumer places an order

through the store applet.

[0032] In an online service conduction scenario, to attract more consumers, the merchant usually needs to cooperate with a plurality of network platforms. In this case, a great deal of energy needs to be spent for interconnection between the merchant and the network platforms. In particular, in some geographical areas, each network platform covers a small quantity of consumers, and there are a large quantity of network platforms, for example, there may be hundreds, thousands, or even tens of thousands of network platforms. In such a geographical area, the merchant needs to interconnect with a huge quantity of network platforms, and needs to spend a huge amount of energy.

[0033] The POS device used by the merchant for offline service conduction can process only the offline order, but cannot receive the online order. To implement normal order receiving on the network platform, the merchant needs to purchase a dedicated order receiving device from the network platform. Sometimes, a plurality of network platforms active in the market, but no network platform is in a monopolistic position in the market, that is, the plurality of network platforms cover different consumer groups. In this case, if the merchant wants to operate normally, the merchant is forced to cooperate with each of the plurality of network platforms. When cooperating with the plurality of network platforms, the merchant needs to purchase an order receiving device from each of the plurality of network platforms. This leads to relatively high purchase costs. In particular, in a case of a relatively large quantity of interconnected network platforms, the purchase costs of the merchant are huge. In addition, a counter of the merchant is crowded if these order receiving devices are placed on the counter. Furthermore, in face of so many order receiving devices, the merchant is prone to distraction, resulting in problems such as untimely order processing. This affects consumer experience.

[0034] Further, when the merchant cooperates with the plurality of network platforms, there are a relatively large quantity of order sources for the merchant. Orders generated on different network platforms are stored on servers of the corresponding network platforms. When managing online orders, the merchant needs to access serving ends of different network platforms to perform order management (for example, order query and order summarization). The merchant cannot perform unified management on all orders. In addition, different network platforms may have different operation manners for order management, and the merchant needs to be familiar with operation manners of different network platforms. Due to the above-mentioned factors, an order

management workload of the merchant is relatively large, and order management efficiency is relatively low.

[0035] Based on at least one of the technical problems described above, this specification provides an order management system. The order management system can help a merchant
5 implement one-stop order management. To facilitate better understanding of the one-stop order management by a reader, the order management system is first described below with reference to FIG. 1.

[0036] FIG. 1 is a schematic diagram of an application scenario 100 of an order management system according to an embodiment of this specification. For ease of understanding, a catering
10 scenario is used as an example in FIG. 1 for description. As shown in FIG. 1, the order management system can include a point of sale (POS) device 110 (or referred to as a POS end or a front-end device) and a service device 120 (or referred to as a serving end, a server, or a back-end device).

[0037] The POS device 110 is a multi-functional terminal. The POS device 110 can be considered as a client of the order management system. In some embodiments, the POS device
15 110 can be a mobile device, for example, a handheld device. The POS device 110 can be carried by a staff member of a merchant to different locations of a store for operation, providing relatively high convenience. In some embodiments, POS device 110 can be a non-mobile device. In this case, the POS device 110 is usually placed on a checkout counter of an offline store of a merchant.

[0038] In this specification, the POS device 110 can receive an offline order and an online
20 order of the merchant. The POS device 110 can further perform checkout processing on the offline order. The POS device 110 can also be referred to as a checkout device, a sales device, or an integrated sales and checkout device.

[0039] The POS device 110 is an electronic device with a specific computing capability. In some embodiments, the POS device 110 can include a hardware device with a data processing
25 function and a necessary program needed to drive the hardware device to work. The POS device 110 can manage an order by driving the hardware device to execute the program. For example, order management software (or an order management program) can be installed in the POS device 110. The POS device 110 can manage an order by running the order management software. The order management software can correspond to an operating system installed in the POS device
30 110, or can correspond to an application (APP) or an instruction set installed in the POS device 110. The order management software can be software preset in the hardware device of the POS

device 110 (for example, software included in the POS device 110 when the POS device 110 is delivered from a factory), or can be software subsequently installed in the POS device 110 by the staff member of the merchant. This is not limited in this specification.

5 [0040] In some embodiments, the POS device 110 can have a display screen, or the POS device 110 can be externally connected to a display screen. The POS device 110 can provide an interaction capability through the display screen. For example, the POS device 110 displays, through the display screen, a product or a service sold by the merchant, and generates an offline order based on a product or a service selected by an operator (the staff member of the merchant or a consumer). The POS device 110 can further display a checkout entry through the display screen, so that the
10 operator performs a checkout operation on the offline order.

[0041] When checking out an order, the POS device 110 supports a plurality of payment methods, including but not limited to cash payment, card swiping payment, code scanning payment, biometric recognition (for example, facial recognition)-based payment, near field communication (NFC)-based payment, and the like.

15 [0042] In some embodiments, when the POS device 110 supports cash payment, the POS device 110 can be provided with a cash box for storing cash.

[0043] In some embodiments, when the POS device 110 supports card swiping payment, a card reading apparatus 111 can be built in or externally connected to the POS device 110. When the built-in manner is used, the card reading apparatus 111 can be disposed at any possible location
20 of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the card reading apparatus 111 in a wired or wireless manner. This is not limited in this specification. The wired connection manner can include but is not limited to a universal serial bus (USB) connection, an Ethernet connection, an optical fiber connection, or the like. The wireless connection manner can include but is not limited
25 to a Wi-Fi connection, a Bluetooth connection, or the like.

[0044] The card reading apparatus 111 is an apparatus that can read card information of a payment card (for example, a debit card or a credit card) of a consumer based on a preset payment specification. When the consumer selects card swiping payment, the POS device 110 can control the card reading apparatus 111 to enter a card reading mode. The card reading apparatus 111 can
30 read the card information of the payment card based on the preset payment specification in response to the consumer placing the payment card close to, attaching the payment card to, or

inserting the payment card into the card reading apparatus.

[0045] In some embodiments, when the POS device 110 supports code scanning payment, a code scanning apparatus 112 can be built in or externally connected to the POS device 110. When the built-in manner is used, the code scanning apparatus 112 can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the code scanning apparatus 112 in a wired or wireless manner. This is not limited in this specification. The code scanning apparatus 112 is an apparatus with a code scanning capability. For example, the code scanning apparatus 112 can include a camera module. When the consumer chooses to pay the offline order by using a payment code, the POS device 110 can control the code scanning apparatus 112 to enter a scanning mode. In response to the consumer aligning the payment code with the code scanning apparatus 112, the code scanning apparatus 112 scans code information of the payment code by using the camera module.

[0046] In some embodiments, when the POS device 110 supports biometric recognition-based payment, a camera apparatus (not shown in FIG. 1) can be built in or externally connected to the POS device 110. When the built-in manner is used, the camera apparatus can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the camera apparatus in a wired or wireless manner. This is not limited in this specification. For example, when the consumer chooses to use face scanning payment, the POS device 110 can control the camera apparatus to enter a camera mode. In response to the consumer aligning the face with the camera apparatus, the camera apparatus captures a face image of the consumer.

[0047] In some embodiments, when the POS device 110 supports near field communication-based payment, a near field communication apparatus (not shown in FIG. 1) can be built in or externally connected to the POS device 110. The near field communication apparatus can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the consumer selects near field communication-based payment, the POS device 110 can control the near field communication apparatus to enter a communication mode. In response to the consumer placing a terminal device having a near field communication component close to the near field communication apparatus, the near field communication apparatus communicates with the near field communication component in the terminal to obtain order payment information.

[0048] In some embodiments, a printing apparatus 113 can be built in or externally connected to the POS device 110. When the built-in manner is used, the printing apparatus 113 can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the printing apparatus 113 in a wired or wireless manner. This is not limited in this specification. Printing paper or label paper can be disposed in the printing apparatus 113. After the consumer successfully pays the order, the POS device 110 can control the printing apparatus 113 to print a consumer ticket or an order label corresponding to the order.

[0049] In some embodiments, the POS device 110 can further include an audio output apparatus (not shown in FIG. 1). The audio output apparatus can be, for example, a speaker. For example, when receiving an online order, the POS device 110 can output voice information through the audio output apparatus, to remind the staff member of the merchant to process the order in a timely manner. For another example, after the consumer performs a payment operation on the offline order by using the POS device 110, in response to the POS device 110 receiving a payment result of the order, the POS device 110 can output voice information through the audio output apparatus, to indicate that payment of the order succeeds or fails.

[0050] Still with reference to FIG. 1, the service device 120 is a computing system with a specific computing capability. The service device 120 is communicatively connected to the POS device 110, and provides an order management service to the POS device 110. The service device 120 can correspond to a single computing device, or can correspond to a computing cluster including a plurality of computing devices. The service device 120 can be deployed locally, or can be deployed remotely. For example, the service device 120 can be a cloud server. In some embodiments, the service device 120 can include a hardware device with a data processing function and a necessary program needed to drive the hardware device to work. The service device 120 can provide the order management service to the POS device by driving the hardware device to execute the program. In some embodiments, the service device 120 can provide the order management service to the POS device in a software as a service (SaaS) mode.

[0051] In some embodiments, when the service device 120 is deployed remotely, the service device 120 can be connected to POS devices 110 of a plurality of merchants, and provide the order management service to the POS devices 110 of the plurality of merchants. In this case, the service device 120 can perform isolated management on orders of different merchants by using various

isolation technologies, to avoid mutual interference between order data of the different merchants and improve security of the order data. A person skilled in the art can understand that content of providing the order management service to POS devices 110 of different merchants by the service device 120 is similar. In the descriptions of this specification, only an example in which the service device 120 provides the order management service to a POS device 110 of one merchant is used for description.

[0052] The service provided by the service device 120 to the POS device 110 can include an order management service for an offline order, and can further include an order management service for an online order.

[0053] A catering scenario is used as an example below to describe a working process of the order management system.

[0054] With reference to FIG. 1, a catering store can be divided into a front-of-house area and a back-of-house area. The front-of-house area is used to receive consumers and is used by the consumers for dining. The front-of-house area can also be referred to as a reception area. The back-of-house area is an area in which a chef prepares a dish. The back-of-house area can also be referred to as a preparation area. The POS device 110 is usually located in the front-of-house area. The service device 120 can be located in the front-of-house area or can be located in the cloud.

[0055] A process in which the order management system processes the offline order is follows: As shown in FIG. 1, a consumer A goes to the store to have a dinner. The consumer A notifies a cashier of a desired dish. The cashier selects the corresponding dish on the POS device 110 and places an order. The POS device 110 generates an offline order in response to an order placement operation performed by the cashier. The POS device 110 sends the offline order to the service device 120, so that the service device 120 stores the offline order. The POS device 110 can further perform checkout processing on the offline order based on a payment method selected by the consumer.

[0056] The order management system can receive online orders from a plurality of online channels. Three cases are used as examples below for description.

[0057] Case 1: With reference to FIG. 1, the service device 120 can be deployed with a store applet. A two-dimensional code of the store applet is set on a dining table (or another location) of the store. A consumer B can scan the two-dimensional code by using a terminal device, to view a page of the store applet. The consumer B selects a desired dish on the applet page, places an order,

and completes online payment. In this case, the service device 120 generates an online order, stores the online order, and then sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

[0058] Case 2: With reference to FIG. 1, a merchant can place a store applet on a network platform. Placement on a wallet platform is used as an example below for description. When using the wallet platform, a consumer C accesses the store applet on the wallet platform, selects a desired dish on an applet page, places an order, and completes online payment. In this case, the wallet platform generates an online order, and sends the online order to the service device 120. The service device 120 stores the online order, and then sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

[0059] Case 3: With reference to FIG. 1, the merchant can open an online store on a network platform. An example in which an online store is opened on a takeout platform is used below for description. When using the takeout platform, a consumer D accesses the online store of the merchant on the takeout platform, selects a desired dish, places an order, and completes online payment. In this case, the takeout platform generates an online order, and sends the online order to the service device 120. The service device 120 stores the online order, and then sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

[0060] It can be learned from the above-mentioned descriptions that offline orders received by merchant and online orders from all channels are stored in the service device 120. Therefore, the merchant can implement unified management on all orders on the service device 120. Compared with the method in which the merchant separately manages orders on different channels, the order management system provided in this specification can improve convenience of order management by the merchant and improve order management efficiency.

[0061] The catering scenario is still used as an example. After receiving an order, the merchant needs to process and prepare a dish in the order. In actual application, after the POS device 110 receives an order (including an offline order and an online order), the POS device 110 can control the printing apparatus to print a kitchen ticket that includes dish content in the order, and the kitchen ticket is manually transferred to the back-of-house area. A chef prepares a dish based on the dish content in the kitchen ticket. In this manner of manually transferring the kitchen ticket, an error in preparing a dish is prone to occur during peak dining hours, and relatively low efficiency results in an increase in dining duration of consumers.

[0062] Therefore, in some embodiments of this specification, as shown in FIG. 1, the order management system can further include one or more display devices 130. For example, in the catering scenario, the display device 130 can also be referred to as a kitchen display system (KDS). The display device 130 is disposed in the back-of-house area, and is communicatively connected to the POS device 110. The display device 130 can receive an order from the POS device 110, and display a to-be-prepared dish to the chef, to improve meal preparation efficiency of the chef and reduce the probability that the chef makes a meal preparation error. In some embodiments, after preparing a dish, the chef can further send a dish preparation completion notification to the POS device 110 by using the display device 130, so that the POS device 110 knows order preparation progress.

[0063] In stores of some merchants, the back-of-house area can be divided into a plurality of stalls. Different stalls are equipped with different chefs responsible for preparing different types of dishes. With reference to FIG. 1, an example in which the back-of-house area includes a cold dish stall and a hot dish stall is used. A chef X1 is responsible for preparing a cold dish and a chef X2 is responsible for preparing a hot dish. In this case, a display device 130 can be disposed in the cold dish stall, and is configured to display a cold dish that needs to be prepared to the chef X1; and a display device 130 can be disposed in the hot dish stall, and is configured to display a hot dish that needs to be prepared to the chef X2. In this way, dish preparation in different stalls does not interfere with each other, to further improve meal preparation efficiency.

[0064] In the application scenario shown in FIG. 1, the POS device 110 can be connected to the service device 120 and the POS device 110 can be connected to the display device 130 through a network. The network is a medium used to provide a communication connection. The network can facilitate exchange of information or data. The network can be any type of wired or wireless network or a combination thereof. For example, the network can include a cable network, a wired network, an optical fiber network, a telecommunications network, an intranet, the Internet, a local area network (LAN), a wide area network (WAN), a wireless local area network (WLAN), a metropolitan area network (MAN), a public switched telephone network (PSTN), a Bluetooth network, a ZigBee network, a near field communication (NFC) network, or a similar network. In some embodiments, the network can include one or more network access points. For example, the network can include a wired or wireless network access point, for example, a base station or an Internet switching point.

[0065] It should be noted that the catering scenario is used as an example in FIG. 1. It can be understood by a person skilled in the art that when the order management system provided in this specification is applied to another scenario, an implementation solution and technical effects thereof are similar to those of the catering scenario. Details are not described in this specification for the another scenario.

[0066] It can be learned from the above-mentioned descriptions that the merchant can implement one-stop order management by using the order management system provided in this specification. The one-stop order management is embodied in at least the following aspects: (1) The merchant can use one POS device 110 to process an offline order and process online orders from a plurality of online channels. In this way, the merchant does not need to interconnect with each of the plurality of online channels, and energy and time costs needed for interconnection are avoided. In addition, the merchant does not need to purchase an order receiving device from each of the plurality of online channels, and purchase costs of the merchant can be lowered. (2) All orders received by the POS device 110 are sent to the display device 130 in the back-of-house area in real time, without a need for the merchant to manually transfer kitchen tickets. This improves order processing efficiency. (3) All orders received by the merchant are stored in the service device 120, and the merchant can implement unified management, for example, order query or summarization, on all the orders on the service device 120. In this way, the merchant does not need to separately perform decentralized order management on different network platforms, thereby improving order management efficiency.

[0067] In some cases, one merchant can be equipped with a plurality of POS devices 110. For example, when a merchant has a relatively large quantity of orders or a relatively large store area, the merchant can purchase a plurality of POS devices 110 from an order management service provider (briefly referred to as a provider below), to improve order management efficiency. The plurality of devices 110 purchased by the merchant have a same function. However, in some service conduction scenarios, the merchant may expect different POS devices 110 to have different permission for order management. For example, some POS devices 110 can support both order placement and checkout, while some POS devices 110 can support only order placement and cannot support checkout. For the above-mentioned service conduction scenario, how to help the merchant implement that different POS devices 110 correspond to different order management permission is a technical problem that the provider needs to consider and resolve.

[0068] In some embodiments, when purchasing the plurality of POS devices 110 from the provider, the merchant can require the provider to perform some customization designs for different POS devices 110, so that the different POS devices have different order management functions. In this way, although the above-mentioned objective can be achieved, in this customization design, use of the plurality of POS devices 110 by the merchant is not flexible enough. For example, the merchant purchases two POS devices 110, a first POS device 110 is customized to support order placement and checkout, and a second POS device 110 is customized to support order placement and not support checkout. In a process of use by the merchant, if the first POS device 110 is faulty or cannot work due to another reason, because the second POS device 110 does not support the checkout function, the merchant cannot normally conduct a service.

[0069] In view of this, this specification provides a device running method. This method allows a merchant to configure an order management capability/permission of a POS device. Different from a manner in which an order management capability/permission is separately configured for each POS device, this solution allows the merchant to define different roles for POS devices. POS devices corresponding to different roles have different order management capabilities/permission, and POS devices corresponding to a same role have a same order management capability/permission. In this way, the POS device can send a configuration request to a service device when detecting a start instruction. The service device can first determine a target role corresponding to the POS device in response to the configuration request, and determine, based on the target role, target configuration information applicable to the POS device; and then send the target configuration information to the POS device, so that the POS device performs a start procedure based on the target configuration information.

[0070] In the above-mentioned solution, an order management capability/permission of the POS device is configurable, and flexibility of using the POS device by the merchant is improved. In addition, in the above-mentioned solution, the merchant does not need to configure an order management capability/permission for each POS device, and only needs to configure order management capabilities/permission corresponding to different roles, thereby improving efficiency of configuring the POS device by the merchant.

[0071] FIG. 2 is a diagram of a hardware structure of a computing device 200 according to an embodiment of this specification. The computing device 200 can serve as a service device or a POS device in FIG. 1, to perform the device running method described in this specification.

- [0072]** As shown in FIG. 2, the computing device 200 can include at least one storage medium 230 and at least one processor 220. In some embodiments, the computing device 200 can further include a communication port 250 and an internal communication bus 210. The computing device 200 can further include an I/O component 260.
- 5 **[0073]** The internal communication bus 210 can be connected to different system components. For example, the internal communication bus 210 can be connected to the storage medium 230, the processor 220, the communication port 250, the I/O component 260, and the like.
- [0074]** The I/O component 260 supports an input/output between the computing device 200 and another component.
- 10 **[0075]** The communication port 250 is used for data communication between the computing device 200 and the outside. For example, the communication port 250 can be used for data communication between the computing device 200 and a network 140. The communication port 250 can be a wired communication port, or can be a wireless communication port.
- [0076]** The storage medium 230 can include a data storage apparatus. The data storage apparatus can be a non-transitory storage medium, or can be a transitory storage medium. For example, the data storage apparatus can include one or more of a disk 232, a read-only storage medium (ROM) 234, or a random access storage medium (RAM) 235. The storage medium 230 further includes at least one instruction set stored in the data storage apparatus. The instruction set can include computer program code. The computer program code can include a program, a routine, an object, a component, a data structure, a process, a module, and the like.
- 15 **[0077]** The at least one processor 220 can be communicatively connected to the at least one storage medium 230. When the computing device 200 runs, the at least one processor 220 reads the at least one instruction set, and performs, based on an indication of the at least one instruction set, the device running method provided in this specification. The processor 220 can perform steps included in the device running method. The processor 220 can be in a form of one or more processors. In some embodiments, the processor 220 can include one or more hardware processors, for example, a microcontroller, a microprocessor, a reduced instruction set computer (RISC), an application-specific integrated circuit (ASIC), an application-specific instruction set processor (ASIP), a central processing unit (CPU), a graphics processing unit (GPU), a physical processing unit (PPU), a microcontroller unit, a digital signal processor (DSP), a field programmable gate array (FPGA), an advanced RISC machine (ARM), a programmable logic device (PLD), any
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circuit, processor, or the like that can perform one or more functions, or any combination thereof.

[0078] To merely describe a problem, only one processor 220 is shown in the computing device 200 in the accompanying drawings. However, it should be noted that the computing device 200 in this specification can further include a plurality of processors. Therefore, the operations and/or method steps disclosed in this specification can be performed by one processor, or can be jointly performed by a plurality of processors. For example, if the processor 220 in the computing device 200 described in this specification performs step A and step B, it should be understood that step A and step B can be jointly or separately performed by two different processors 220 (for example, a first processor performs step A and a second processor performs step B, or a first processor and a second processor jointly perform step A and step B).

[0079] FIG. 3 is a flowchart of a device running method according to an embodiment of this specification. The device running method shown in FIG. 3 is applied to an order management system and is jointly performed by a service device and a plurality of POS devices.

[0080] As shown in FIG. 3, the device running method can include the following steps.

[0081] S310: A first POS device sends a configuration request to the service device in response to detecting a start instruction.

[0082] FIG. 4 is a schematic diagram of application of a device running method to a catering scenario according to an embodiment of this specification.

[0083] In some embodiments, FIG. 4 shows a catering scenario. In this scenario, a plurality of POS devices are disposed in a store of a target merchant, and each POS device is separately connected to the service device. The first POS device is any one of the plurality of POS devices.

[0084] In an example, with reference to FIG. 4, before the store of the target merchant starts business, a staff member needs to perform a start operation on each POS device, to start the POS device from a shutdown state and enable a target application for managing an order. The staff member can include a cashier, a waiter, a pantry helper, or the like. A specific identity of the staff member is not limited in this specification.

[0085] In some embodiments, the order management system can be provided in different forms at the POS end. For example, the order management system can be provided in a form of an operating system or in a form of an application.

[0086] In an example, when the order management system is provided in the form of an operating system, the start operation can include pressing a start button of the POS device or

powering on the POS device. When the order management system is provided in the form of an application, the start operation can include starting a target application corresponding to the order management system in the POS device.

[0087] Correspondingly, when the order management system is provided in the form of an operating system, that a POS device detects a start instruction can include detecting a start pulse signal generated after the start button is pressed or detecting that the POS device is changed from a power-off state to a power-on state. When the order management system is provided in the form of an application, that a POS device detects a start instruction includes detecting a start instruction of the target application.

[0088] In some embodiments, the order management system is provided in the form of an operating system. When the staff member presses a start button of a POS device 110-1, the POS device 110-1 is the first POS device. After the start button is pressed, the start pulse signal (that is, a start instruction) can be generated. The POS device 110-1 detects and responds to the start pulse signal through a processor, reads and executes at least one instruction set in a data storage apparatus, and performs a start procedure of the order management system in the POS device 110-1. The POS device 110-1 can send a configuration request to the service device in a process of performing the start procedure of the order management system in response to detecting the start instruction, to obtain configuration information of the POS device 110-1 from the service device.

[0089] In some embodiments, the order management system is provided in the form of an application. When the staff member operates a POS device 110-4 and starts the target application, the POS device 110-4 is the first POS device. The POS device 110-4 can generate the start instruction of the target application in response to a start operation performed by the staff member on the target application, and start the target application based on the start instruction.

[0090] In some embodiments, the start instruction can be a start instruction corresponding to a first start of the POS device, or can be a start instruction corresponding to each start of the POS device. For example, when a function of the POS device is statically configured (that is, is configured once and valid for a long time), an order management function of the POS device can be configured during the first start. In this case, the start instruction can be the start instruction corresponding to the first start of the POS device. Alternatively, when a function of the POS device is dynamically configured (that is, is configured during each start), an order management function of the POS device can be configured during each start. In this case, the start instruction is the start

instruction corresponding to each start of the POS device.

[0091] S320: The service device determines a target role corresponding to the first POS device in response to the configuration request.

[0092] In some embodiments, the target role is one of a primary device role or a secondary device role. The primary device role can have more order management functions than the secondary device role. The order management function can include at least an order checkout function, an order query function, an order modification function, and an order addition/deletion function. The order management function is used to manage a target order received by the first POS device.

[0093] In some embodiments, the order checkout function is used to perform a payment procedure of the target order; the order query function is used to query content of at least one target order stored in the first POS device; the order modification function is used to update information such as a quantity of products in the target order, a processing requirement of the product, and a delivery location of the product; and the order addition/deletion function is used to create a new target order or delete at least one target order from a storage.

[0094] In some embodiments, the primary device role can be a POS device used by the target merchant for checkout. When the target role is the primary device role, the target configuration information at least indicates that the order checkout function is supported. When the target role is the secondary device role, the target configuration information at least indicates that the order checkout function is disabled. For example, target configuration information of the primary device role can indicate that the order checkout function, the order query function, the order modification function, and the order addition/deletion function are supported; and target configuration information of the secondary device role can indicate that the order query function, the order modification function, and the order addition function are supported.

[0095] In an example, the plurality of POS devices can include a plurality of primary device roles. For example, with reference to FIG. 4, the store of the target merchant includes two areas, and one primary device role can be disposed in each area. The POS device 110-1, a POS device 110-2, and a POS device 110-3 are all located in a front-of-house area 1, the POS device 110-1 can serve as a primary device role in the front-of-house area 1, and the POS device 110-2 and the POS device 110-3 serve as secondary device roles. The POS device 110-4, a POS device 110-5, and a POS device 110-6 are all located in a front-of-house area 2, the POS device 110-4 can serve as a

primary device role in the front-of-house area 1, and the POS device 110-5 and the POS device 110-6 serve as secondary device roles.

[0096] In some embodiments, the service device can determine the target role corresponding to the first POS device based on the configuration request. For example, the configuration request
5 can include information used to determine the target role, and the service device can determine the target role corresponding to the first POS device by parsing the configuration request. Alternatively, the service device can determine the target role corresponding to the first POS device based on a start ranking of the first POS device in the plurality of POS devices when the first POS device sends the configuration request.

10 **[0097]** In some embodiments, the configuration request can include the target role, and the target role is entered by an operator to the first POS device when the start instruction is triggered. The service device can obtain the target role through parsing from the configuration request.

[0098] In an example, with reference to the catering scenario shown in FIG. 4, it is assumed that the POS device 110-1 is the first POS device. When starting the POS device 110-1, the staff
15 member can enter, through an operation interface of the POS device 110-1, a target role (for example, a primary device role) that the POS device 110-1 needs to assume. Then, the POS device 110-1 can generate a configuration request based on the target role that the POS device 110-1 needs to assume, and send the configuration request to the service device. After receiving and parsing the configuration request, the service device can determine that the target role corresponding to
20 the POS device 110-1 is the primary device role.

[0099] In this embodiment, the merchant can specify the target role of the first POS device when starting the first POS device. In this way, the merchant can flexibly configure a function of each POS device based on an actual business condition, providing a flexible and simple manner of configuring the POS device.

25 **[0100]** In some embodiments, the configuration request includes an identifier of the first POS device. The determining a target role corresponding to the first POS device includes: obtaining first pre-configuration information corresponding to the target merchant, where the first pre-configuration information includes a correspondence between identifiers of the plurality of POS devices and a plurality of roles; and querying the first pre-configuration information based on the
30 identifier of the first POS device, to obtain the target role corresponding to the first POS device.

[0101] In an example, the identifier of the first POS device can include a name, a serial number,

a physical address, and the like of the first POS device. For example, the identifier of the first POS device is a serial number. Serial numbers of a plurality of POS devices belonging to the target merchant and a role corresponding to each serial number can be recorded in the first pre-configuration information. The first pre-configuration information can be preconfigured and stored
5 in the service device.

[0102] In some embodiments, the first pre-configuration information can be recorded by using a JavaScript (JS) object notation (JSON) file. In an example, the JSON file includes a plurality of key-value pairs. A serial number of a POS device can be recorded by using a key in the file, and a corresponding role can be recorded by using a value corresponding to the key. For example, in the
10 first pre-configuration information recorded by using the JSON file, when a value corresponding to a serial number of a POS device is 1, it indicates that the POS device is a primary device role, and when a value corresponding to a serial number of a POS device is 0, it indicates that the POS device is a secondary device role.

[0103] In this embodiment, the service device can query the first pre-configuration information
15 based on the identifier of the first POS device, to obtain the target role corresponding to the first POS device. In this way, the merchant may not need to separately configure the function of each POS device during a start. It can be learned that the above-mentioned solution provides a simpler and faster manner of configuring the POS device.

[0104] In some embodiments, the determining a target role corresponding to the first POS
20 device includes: determining the target role corresponding to the first POS device based on a start ranking of the first POS device in the plurality of POS devices.

[0105] In some embodiments, if the first POS device is a POS device started first in the plurality of POS devices, it is determined that the target role corresponding to the first POS device is the primary device role; or if the first POS device is not a POS device started first in the plurality
25 of POS devices, it is determined that the target role corresponding to the first POS device is the secondary device role.

[0106] In an example, with reference to FIG. 4, the store of the target merchant includes a plurality of POS devices. When all the POS devices are in an off state, it is assumed that the staff member first starts the POS device 110-1. When the service device detects that the POS device
30 110-1 is a POS device started first, the service device determines that the target role of the POS device 110-1 is the primary device role. In this case, for another POS device started after the POS

device 110-1, the service device determines that a role of the another POS device is the secondary device role.

[0107] In some embodiments, the plurality of POS devices are located in the store of the target merchant, the store is divided into a plurality of areas, the plurality of POS devices are classified into a plurality of groups, POS devices in a same group are located in a same area of the store, and POS devices in different groups are located in different areas of the store. In this case, the service device can determine the target role corresponding to the first POS device based on a start ranking of the first POS device in a group in which the first POS device is located.

[0108] In an example, with reference to the catering scenario shown in FIG. 4, the store of the target merchant is divided into the front-of-house area 1 and the front-of-house area 2. In an example, the front-of-house area 1 and the front-of-house area 2 can be different areas in a same room, can be different floors of a same building, or can be adjacent or nearby rooms. This is not limited in this specification. In this scenario, a plurality of POS devices are disposed in each front-of-house area, and POS devices in a same front-of-house area are classified into one group.

[0109] For example, in the catering scenario shown in FIG. 4, the POS device 110-1, the POS device 110-2, and the POS device 110-3 are all disposed in the front-of-house area 1, and the POS device 110-4, the POS device 110-5, and the POS device 110-6 are all disposed in the front-of-house area 2, and the POS device 110-4, the POS device 110-5, and the POS device 110-6 can be classified into a second group.

[0110] When all the POS devices are in an off state, if the staff member first starts the POS device 110-1, because the POS device 110-1 is a POS device started first in the first group, the service device can determine that the target role of the POS device 110-1 is the primary device role. In this case, if the staff member continues to start the POS device 110-2 and the POS device 110-3, because the POS device 110-2 and the POS device 110-3 are not started first in the first group, the service device can determine that target roles of the POS device 110-2 and the POS device 110-3 are secondary device roles.

[0111] If the staff member continues to start any one of the POS device 110-4, the POS device 110-5, or the POS device 110-6, because the POS device 110-4, the POS device 110-5, or the POS device 110-6 belongs to the second group and no POS device is started in the second group, it can be determined that a target role of the currently started POS device is the primary device role. For

example, if the currently started POS device is the POS device 110-4, the service device can determine that a target role of the POS device 110-4 is the primary device role. If the staff member continues to start the POS device 110-5 or the POS device 110-6, the service device can determine that target roles of the POS device 110-5 and the POS device 110-6 are secondary device roles.

5 **[0112]** In some embodiments, when determining the start ranking of the POS device, the service device can first determine a quantity of devices in an online state in the plurality of POS devices; and then determine the start ranking of the first POS device in the plurality of POS devices based on the quantity of devices. For example, when receiving the configuration request from the first POS device, the service device can increase the quantity of devices in the online state by 1, to
10 obtain the start ranking of the first POS device.

[0113] In some embodiments, when the plurality of POS devices are classified into different groups, the start ranking of the first POS device is a start ranking of the first POS device in a group to which the first POS device belongs. When determining the start ranking of the POS device, the service device can first determine a quantity of devices in the online state in each group; and then
15 determine, based on the quantity of devices, the start ranking of the first POS device in the group in which the first POS device is located. For example, when receiving the configuration request from the first POS device, the service device can increase a quantity of devices in the online state in the group in which the first POS device is located by 1, to obtain the start ranking of the first POS device.

20 **[0114]** In an example, in the catering scenario shown in FIG. 4, it is assumed that the plurality of POS devices are not grouped. When all the POS devices are in the off state, a quantity of devices in an online state in the plurality of POS devices is 0. In this case, it is assumed that the staff member starts the POS device 110-1. When receiving the configuration request from the POS device 110-1, the service device can increase the quantity (0) of devices in the online state by 1,
25 to obtain a start ranking (1) of the POS device 110-1. After the POS device 110-1 is started, the quantity of devices in the online state in the plurality of POS devices is updated from 0 to 1. In this case, it is assumed that the staff member starts the POS device 110-2. When receiving a configuration request from the POS device 110-2, the service device can increase the quantity (1) of devices in the online state by 1, to obtain a start ranking (2) of the POS device 110-2.

30 **[0115]** In an example, in the catering scenario shown in FIG. 4, it is assumed that the plurality of POS devices are grouped based on the above-mentioned example. When all the POS devices

are in the off state, a quantity of devices in an online state in the plurality of POS devices is 0 (that is, a quantity of devices in the online state in each group is 0).

5 [0116] In this case, it is assumed that the staff member starts the POS device 110-1. When the service device receives the configuration request from the POS device 110-1, because the POS device 110-1 belongs to the first group, a quantity (0) of devices in the online state in the first group can be increased by 1, to obtain a start ranking (1) of the POS device 110-1 in the first group. After the POS device 110-1 is started, the quantity of devices in the online state in the first group is updated from 0 to 1.

10 [0117] In this case, it is assumed that the staff member starts the POS device 110-2. When the service device receives a configuration request from the POS device 110-2, because the POS device 110-2 belongs to the first group, the quantity (1) of devices in the online state in the first group can be increased by 1, to obtain a start ranking (2) of the POS device 110-2 in the first group.

[0118] In this case, if the staff member starts the POS device 110-4, when the service device receives a configuration request from the POS device 110-4, because the POS device 110-4 belongs to the second group, a quantity (0) of devices in the online state in the second group can be increased by 1, to obtain a start ranking (1) of the POS device 110-4 in the second group.

[0119] In this embodiment, the service device can automatically use the POS device started first as the primary device role, so that the merchant can flexibly determine enabling of the POS device based on an actual business condition. Even if only some POS devices are started, it still can be ensured that there is always at least one primary device, to ensure that a business activity can be conducted normally. In addition, in the above-mentioned solution, the merchant does not need to remember the role of the POS device. It can be learned that the above-mentioned solution provides a more flexible manner of configuring the POS device.

25 [0120] S330: The service device determines, based on the target role, target configuration information applicable to the first POS device, where the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device.

[0121] In some embodiments, the target configuration information can include an enable list (representing the order management function supported by the first POS device) or a disable list (representing the order management function disabled by the first POS device). In an example, when receiving the enable list, the first POS device can enable the order management function

listed in the enable list. Correspondingly, when receiving the disable list, the first POS device can enable an order management function other than the order management function listed in the disable list.

[0122] For example, if the order management function includes the order checkout function, the order query function, the order modification function, and the order addition/deletion function, when the enable list received by the first POS device indicates to enable the order query function and the order modification function, the first POS device can enable only the order query function and the order modification function. When the disable list received by the first POS device indicates to disable the order checkout function, the first POS device can enable the order query function, the order modification function, and the order addition/deletion function.

[0123] In some embodiments, the determining, based on the target role, target configuration information applicable to the first POS device includes: obtaining second pre-configuration information corresponding to the target merchant, where the second pre-configuration information includes configuration information corresponding to each of a plurality of roles; and querying configuration information corresponding to the target role from the second pre-configuration information as the target configuration information.

[0124] The service device can obtain the second pre-configuration information from a local storage or a preset database based on a merchant corresponding to the first POS device. The second pre-configuration information can be preconfigured by each merchant and uploaded to the service device or the preset database.

[0125] In some embodiments, the second pre-configuration information can also be recorded by using a JSON file. In an example, the JSON file includes a plurality of key-value pairs. A role can be recorded by using a key in the file, and configuration information corresponding to the role can be recorded by using a value corresponding to the key. For example, in the second pre-configuration information recorded by using the JSON file, when a value corresponding to the primary device role can be "function 1: 1; function 2: 1; function 3: 1; function 4: 1", it indicates that the primary device role enables the function 1, the function 2, the function 3, and the function 4; and when a value corresponding to the secondary device role can be "function 1: 0; function 2: 1; function 3: 1; function 4: 0, it indicates that the secondary device role enables the function 2 and the function 3. In the above-mentioned example, "function 1: 1" indicates that the function 1 is enabled, and "function 1: 0" indicates that the function 1 is not enabled.

[0126] In some embodiments, the service device queries the configuration information corresponding to the target role from the second pre-configuration information as the target configuration information. With reference to the above-mentioned example, when the second pre-configuration information recorded by using the JSON file is used, the service device can obtain a value corresponding to the target role, and generate the target configuration information based on the corresponding value. For example, with reference to the primary device role shown in the above-mentioned example, if the target configuration information includes the enable list, the enable list includes the function 1, the function 2, the function 3, and the function 4; or if the target configuration information includes the disable list, the disable list is empty. For another example, with reference to the secondary device role shown in the above-mentioned example, if the target configuration information includes the enable list, the enable list includes the function 2 and the function 3; or if the target configuration information includes the disable list, the disable list includes the function 1 and the function 4.

[0127] S340: The service device sends the target configuration information to the first POS device.

[0128] In some embodiments, with reference to FIG. 4, each POS device is communicatively connected to the service device. In an example, the POS device and the service device can be communicatively connected through the Internet or a local area network. A specific connection manner of the POS device and the service device can be determined based on an actual application situation. For example, when the service device is disposed in the cloud, the service device can send the target configuration information to the first POS device through the Internet; or when the service device is locally disposed, the service device can send the target configuration information to the first POS device through the Internet or a local area network connection. This is not limited in this specification.

[0129] S350: The first POS device performs a start procedure corresponding to the start instruction based on the target configuration information.

[0130] In some embodiments, in a process of performing the start procedure, the first POS device renders an interaction interface of the first POS device based on the target configuration information, so that the rendered interaction interface meets at least one of the following conditions: An access entry of the order management function supported by the first POS device is visible in the interaction interface; or an access entry of the order management function disabled by the first

POS device is invisible in the interaction interface.

[0131] FIG. 5 is a schematic diagram of an interaction interface of a POS device serving as a primary device role according to an embodiment of this specification. FIG. 6 is a schematic diagram of an interaction interface of a POS device serving as a secondary device role according to an embodiment of this specification.

[0132] In some embodiments, with reference to FIG. 5, when the first POS device is the primary device role, the target configuration information of the first POS device indicates that the first POS device supports the order checkout function, the order query function, the order modification function, and the order addition/deletion function. The first POS device can render, in the interaction interface based on the target configuration information, a first access entry 51 corresponding to the order addition/deletion function, a second access entry 52 corresponding to the order checkout function, a third access entry 53 corresponding to the order modification function, and a fourth access entry 54 corresponding to the order query function. When detecting a tap operation performed on any area of the displayed first access entry 51, second access entry 52, third access entry 53, or fourth access entry 54, the first POS device can display a corresponding function based on the area corresponding to the tap operation.

[0133] In some embodiments, with reference to FIG. 6, when the first POS device is the secondary device role, the target configuration information of the first POS device indicates that the first POS device supports the order query function, the order modification function, and the order addition/deletion function. The first POS device can hide, in the interaction interface based on the target configuration information, a second access entry 52 corresponding to the order checkout function, and render a first access entry 51 corresponding to the addition/deletion function, a third access entry 53 corresponding to the order modification function, and a fourth access entry 54 corresponding to the order query function. When detecting a tap operation performed on any area of the displayed first access entry 51, third access entry 53, or fourth access entry 54, the first POS device can display a corresponding function based on the area corresponding to the tap operation.

[0134] In some embodiments, after the first POS device performs the start procedure, the service device can further obtain updated configuration information corresponding to the target role from the second pre-configuration information in response to detecting that the configuration information corresponding to the target role in the second pre-configuration information changes,

and send the updated configuration information to the first POS device.

[0135] In an example, the staff member of the merchant can modify, add, or delete the role of the POS device based on an actual business requirement. For example, the service device can provide a management client, configured to display a configuration interface to the staff member of the merchant. The staff member of the merchant can modify, add, or delete related configuration data of the role of the POS device in the configuration interface. The service device updates the second pre-configuration information based on an operation performed by the staff member. If the configuration information corresponding to the target role in the second pre-configuration information changes, the service device can obtain the updated configuration information corresponding to the target role from the second pre-configuration information, and send the updated configuration information to the first POS device.

[0136] A manner in which the service device can obtain the updated configuration information corresponding to the target role from the second pre-configuration information and send the updated configuration information to the first POS device is similar to that in S330 and S340. A manner in which the first POS device receives the updated configuration information and performs again the start procedure corresponding to the start instruction based on the updated configuration information is similar to that in S350. Details are not described herein again.

[0137] In this embodiment, when detecting that the configuration information corresponding to the target role changes, the service device can actively push the updated configuration information to the POS device corresponding to the role in a timely manner, so that each POS device can update configuration of the POS device in a timely manner, to ensure that a function of each POS device meets an actual business requirement, and ensure that a business activity can be conducted normally.

[0138] When the target role of the first POS device is the secondary device role, after the start procedure is performed, the device running method further includes: The first POS device generates a target order in response to an order placement operation performed by an operator on the first POS device, and sends the target order to the service device.

[0139] In some embodiments, with reference to FIG. 4, it is assumed that the POS device 110-1 is the first POS device, the target role of the first POS device is the secondary device role, and the secondary device role supports the order query function, the order modification function, and the order addition/deletion function. When the staff member provides an order placement service

and places an order for a consumer A on the POS device 110-1, the first POS device can generate a target order and store the target order in local storage space.

[0140] Further, because the first POS device does not have a checkout function, the first POS device can send the target order to the service device. After receiving the target order, the service device can forward the target order to a POS device corresponding to the primary device role. For ease of description, the POS device corresponding to the primary device role is referred to as a second POS device below. After receiving the target order, the second POS device can first locally store the target order. When the consumer needs to pay the target order, the second POS device performs a payment procedure of the target order. In the above-mentioned solution, a primary POS device (the POS device corresponding to the primary device role) performs checkout processing on an order generated by a secondary POS device (that is, the POS device corresponding to the secondary device role), to meet a requirement that the merchant uses only some POS devices for checkout.

[0141] In conclusion, in the device running method provided in this specification, the POS device can send a configuration request to the service device when detecting a start instruction; and the service device can first determine a target role corresponding to the POS device in response to the configuration request, and determine, based on the target role, target configuration information applicable to the POS device; and then send the target configuration information to the POS device, so that the POS device performs a start procedure based on the target configuration information. In the above-mentioned solution, an order management capability/permission of the POS device is configurable, and flexibility of using the POS device by the merchant is improved. In addition, in the above-mentioned solution, the merchant does not need to configure an order management capability/permission for each POS device, and only needs to configure order management capabilities/permission corresponding to different roles, thereby improving efficiency of configuring the POS device by the merchant.

[0142] Further, in the above-mentioned solution, the service device can automatically determine, in a process of starting a POS device, a target role corresponding to the POS device, and adaptively determine, based on the target role, target configuration information applicable to each POS device, to further improve flexibility of using the POS device by the merchant. For example, it is assumed that the POS devices are classified into the primary device role and the secondary device role, the primary device role supports the order placement and checkout

functions, and the secondary device role supports the order placement function but does not support the checkout function. In this case, in a service conduction process, the merchant needs to ensure that the primary device role needs to be powered on and started, and the secondary device role can be selectively started. If the POS device is used as a granularity and the order management capability/permission is configured for each POS device, the merchant needs to remember which POS device corresponds to the primary device role and which POS device corresponds to the secondary device role. In addition, when only some POS devices need to be used, it needs to be manually ensured that the POS device corresponding to the primary device role needs to be powered on and used. However, if the solution provided in this specification is used, the service device can automatically determine the role of the POS device. For example, the service device can determine the POS device started first as the primary device role, and determine a POS device subsequently started as the secondary device role. In this way, the merchant does not need to intentionally remember which POS device corresponds to the primary device role and which POS device corresponds to the secondary device role. When only some POS devices are used, regardless of which POS devices are selected by the merchant, it can be automatically ensured that there is definitely the primary device role in the currently used POS devices. It can be learned that in the above-mentioned solution, flexibility of using the POS device by the merchant can be greatly improved.

[0143] According to another aspect of this specification, a computer-readable non-transitory storage medium is provided and stores at least one instruction set for device configuration. When the at least one instruction set is executed by a processor, the at least one instruction set instructs the processor to implement the steps in the device running method in this specification. In some possible implementations, various aspects of this specification can be further implemented in a form of a program product, including program code. When the program product runs on the computing device 200, the program code is used to enable the computing device 200 to perform the steps in the device running method described in this specification. The program product configured to implement the above-mentioned method can use a portable compact disc read-only memory (CD-ROM) that includes program code, and can run on the computing device 200. However, the program product in this specification is not limited thereto. In this specification, a readable storage medium can be any tangible medium that includes or stores a program, and the program can be used by or in combination with an instruction execution system. The program

product can be any combination of one or more readable media. The readable medium can be a readable signal medium or a readable storage medium. For example, the readable storage medium can be but is not limited to an electrical system, apparatus, or device, a magnetic system, apparatus, or device, an optical system, apparatus, or device, an electromagnetic system, apparatus, or device, an infrared system, apparatus, or device, or a semiconductor system, apparatus, or device, or any combination thereof. More specific examples of the readable storage medium include an electrical connection including one or more conducting wires, a portable disk, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any proper combination thereof. The computer-readable storage medium can include a data signal propagated in a baseband or as a part of a carrier, and carries readable program code. The propagated data signal can be in a plurality of forms, and includes but is not limited to an electromagnetic signal, an optical signal, or any proper combination thereof. The readable storage medium can alternatively be any readable medium other than the readable storage medium, and the readable medium can send, propagate, or transmit a program used by or in combination with an instruction execution system, apparatus, or device. The program code included in the readable storage medium can be transmitted by using any proper medium, including but not limited to a wireless medium, a wired medium, an optical cable, an RF medium, or any proper combination thereof. Program code for performing the operations in this specification can be written in any combination of one or more program design languages. The program design language includes an object-oriented program design language, for example, Java or C++, and further includes a conventional procedural program design language, for example, a "C" language, or a similar program design language. The program code can be completely executed on the computing device 200, partially executed on the computing device 200, executed as an independent software package, partially executed on the computing device 200 and partially executed on a remote computing device, or completely executed on a remote computing device.

[0144] According to another aspect of this specification, an order management system is provided and includes: a service device, configured to perform a device running method related to the service device; and a plurality of POS devices, where at least some of the plurality of POS devices correspond to different roles, and a first POS device in the plurality of POS devices is

configured to perform a device running method related to the POS device.

[0145] Specific embodiments of this specification are described above. Other embodiments fall within the scope of the appended claims. In some cases, the actions or steps described in the claims can be performed in a sequence different from that in the embodiments and desired results can still be achieved. In addition, the process depicted in the accompanying drawings does not necessarily need a particular sequence or consecutive sequence to achieve the desired results. In some implementations, multitasking and parallel processing are possible or may be advantageous.

[0146] In conclusion, after reading the detailed disclosure, a person skilled in the art can understand that the detailed disclosure can be presented only by using an example, and can impose no limitation. Although it is not explicitly stated herein, a person skilled in the art can understand that the requirements of this specification include various proper changes, improvements, and modifications to the embodiments. These changes, improvements, and modifications are intended to be provided in this specification, and fall within the spirit and scope of the example embodiments of this specification.

[0147] In addition, some terms in this specification are used to describe the embodiments of this specification. For example, "one embodiment", "embodiments", and/or "some embodiments" mean/means that specific features, structures, or characteristics described with reference to the embodiment can be included in at least one embodiment of this specification. Therefore, it can be emphasized and understood that two or more references to "embodiments", "one embodiment", or "alternative embodiments" in various parts of this specification do not necessarily refer to a same embodiment. In addition, specific features, structures, or characteristics can be properly combined in one or more embodiments of this specification.

[0148] It should be understood that in the above-mentioned descriptions of the embodiments of this specification, to help understand a feature, for the purpose of simplifying this specification, various features are combined in a single embodiment, accompanying drawing, or description thereof in this specification. However, this does not mean that the combination of these features is necessary. It is entirely possible for a person skilled in the art to label some devices and understand the devices as separate embodiments when reading this specification. That is, the embodiments of this specification can also be understood as an integration of a plurality of secondary embodiments. Content of each secondary embodiment is also true when a quantity of features is less than a quantity of all features in one of the embodiments disclosed above.

[0149] Each patent, patent application, publication of a patent application, and other materials, for example, articles, books, instructions, publications, documents, and products, that are cited in this specification and that are other than any document that is inconsistent or conflict with this document or that imposes limiting impact on the widest scope of the claims can be incorporated
5 herein by reference and used for all purposes now or later associated with this document. In addition, the terms in this document shall prevail if there is any inconsistency or conflict between the descriptions, definitions, and/or use of the related terms in any material and the descriptions, definitions, and/or use of the related terms in this document.

[0150] Finally, it should be understood that the principles of the implementation solutions of
10 this specification are described in the implementation solutions of the application disclosed in this specification. Other modified embodiments also fall within the scope of this specification. Therefore, the embodiments disclosed in this specification are merely examples and not limitations. A person skilled in the art can use an alternative configuration according to the embodiments of this specification to implement the application in this specification. Therefore, the embodiments
15 of this specification are not limited to the embodiments accurately described in the application.

CLAIMS

What is claimed is:

1. A device running method, applied to an order management system of a target merchant, wherein the order management system comprises a service device and a plurality of POS devices,
5 at least some of the plurality of POS devices correspond to different roles, and the method is performed by the service device and comprises:

receiving a configuration request from a first POS device, wherein the configuration request is sent by the first POS device to the service device in response to detecting a start instruction, and the first POS device is any one of the plurality of POS devices;

10 determining a target role corresponding to the first POS device in response to the configuration request, and determining, based on the target role, target configuration information applicable to the first POS device, wherein the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device; and

15 sending the target configuration information to the first POS device, so that the first POS device performs a start procedure corresponding to the start instruction based on the target configuration information.

2. The method according to claim 1, wherein the determining a target role corresponding to the first POS device comprises:

20 determining the target role corresponding to the first POS device based on a start ranking of the first POS device in the plurality of POS devices.

3. The method according to claim 2, wherein the determining the target role corresponding to the first POS device based on the start ranking comprises:

if the first POS device is a POS device started first in the plurality of POS devices,
25 determining that the target role corresponding to the first POS device is a primary device role; or

if the first POS device is not a POS device started first in the plurality of POS devices, determining that the target role corresponding to the first POS device is a secondary device role.

4. The method according to claim 2, wherein the method further comprises:

determining a quantity of devices in an online state in the plurality of POS devices; and

30 determining the start ranking of the first POS device in the plurality of POS devices based on

the quantity of devices.

5. The method according to claim 2, wherein the plurality of POS devices are located in a store of the target merchant, the store is divided into a plurality of areas, the plurality of POS devices are classified into a plurality of groups, POS devices in a same group are located in a same area of the store, and POS devices in different groups are located in different areas of the store; and

the determining the target role corresponding to the first POS device based on a start ranking of the first POS device in the plurality of POS devices comprises:

determining the target role corresponding to the first POS device based on a start ranking of the first POS device in a group in which the first POS device is located.

6. The method according to claim 1, wherein the configuration request comprises the target role, and the target role is entered by an operator to the first POS device when the start instruction is triggered; and

the determining a target role corresponding to the first POS device comprises: obtaining the target role through parsing from the configuration request.

7. The method according to claim 1, wherein the configuration request comprises an identifier of the first POS device, and the determining a target role corresponding to the first POS device comprises:

obtaining first pre-configuration information corresponding to the target merchant, wherein the first pre-configuration information comprises a correspondence between identifiers of the plurality of POS devices and a plurality of roles; and

querying the first pre-configuration information based on the identifier of the first POS device, to obtain the target role corresponding to the first POS device.

8. The method according to claim 1, wherein the determining, based on the target role, target configuration information applicable to the first POS device comprises:

obtaining second pre-configuration information corresponding to the target merchant, wherein the second pre-configuration information comprises configuration information corresponding to each of a plurality of roles; and

querying configuration information corresponding to the target role from the second pre-configuration information as the target configuration information.

9. The method according to claim 8, wherein after the first POS device performs the start

procedure, the method further comprises:

obtaining updated configuration information corresponding to the target role from the second pre-configuration information in response to detecting that the configuration information corresponding to the target role in the second pre-configuration information changes, and sending
5 the updated configuration information to the first POS device.

10. The method according to claim 1, wherein the target role is one of a primary device role or a secondary device role; and

when the target role is the primary device role, the target configuration information at least indicates that an order checkout function is supported; or

10 when the target role is the secondary device role, the target configuration information at least indicates that an order checkout function is disabled.

11. The method according to claim 10, wherein when the target role is the secondary device role, after the first POS device performs the start procedure, the method further comprises:

receiving a target order from the first POS device, wherein the target order is an order
15 generated by the first POS device and not paid; and

sending the target order to a second POS device, so that the second POS device performs a payment procedure of the target order, wherein the second POS device is a POS device corresponding to the primary device role in the plurality of POS devices.

12. A device running method, applied to an order management system, wherein the order
20 management system comprises a service device and a plurality of POS devices, at least some of the plurality of POS devices correspond to different roles, and the method is performed by a first POS device in the plurality of POS devices and comprises:

sending a configuration request to the service device in response to detecting a start instruction;

25 receiving target configuration information from the service device, wherein the target configuration information is configuration information that is applicable to the first POS device and that is determined by the service device based on a target role corresponding to the first POS device, and the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device; and

30 performing a start procedure corresponding to the start instruction based on the target configuration information.

13. The method according to claim 12, wherein the performing a start procedure corresponding to the start instruction based on the target configuration information comprises:

rendering an interaction interface of the first POS device based on the target configuration information in a process of performing the start procedure, so that the rendered interaction interface

5 meets at least one of the following conditions:

an access entry of the order management function supported by the first POS device is visible in the interaction interface; or

an access entry of the order management function disabled by the first POS device is invisible in the interaction interface.

10 14. The method according to claim 12, wherein the target role is one of a primary device role or a secondary device role; and

when the target role is the primary device role, the target configuration information at least indicates that an order checkout function is supported; or

when the target role is the secondary device role, the target configuration information at least
15 indicates that an order checkout function is disabled.

15. The method according to claim 14, wherein when the target role is the secondary device role, after the start procedure is performed, the method further comprises:

generating a target order in response to an order placement operation performed by an operator on the first POS device, and sending the target order to the service device, wherein

20 the target order is sent by the service device to a second POS device, so that the second POS device performs a payment procedure of the target order, wherein the second POS device is a POS device corresponding to the primary device role in the plurality of POS devices.

16. An electronic device, applied to an order management system, wherein the order management system comprises a service device and a plurality of POS devices, at least some of
25 the plurality of POS devices correspond to different roles, and the electronic device serves as the service device and comprises:

at least one storage medium that stores at least one instruction set for managing order data; and

at least one processor that is communicatively connected to the at least one storage, wherein
30 when the electronic device runs, the at least one processor reads the at least one instruction set, and performs the device running method according to any one of claims 1 to 11 based on an

indication of the at least one instruction set.

17. An electronic device, applied to an order management system, wherein the order management system comprises a service device and a plurality of POS devices, at least some of the plurality of POS devices correspond to different roles, and the electronic device serves as a first POS device in the plurality of POS devices and comprises:

at least one storage medium that stores at least one instruction set for managing order data; and

at least one processor that is communicatively connected to the at least one storage, wherein when the electronic device runs, the at least one processor reads the at least one instruction set, and performs the device running method according to any one of claims 12 to 15 based on an indication of the at least one instruction set.

18. A computer-readable non-transitory storage medium, wherein the computer-readable non-transitory storage medium stores at least one instruction set, and when the at least one instruction set is executed by at least one processor, the device running method according to any one of claims 1 to 11 is implemented, or the device running method according to any one of claims 12 to 15 is implemented.

19. An order management system, comprising a service device and a plurality of POS devices, wherein at least some of the plurality of POS devices correspond to different roles;

any first POS device in the plurality of POS devices is configured to send a configuration request to the service device in response to detecting a start instruction;

the service device is configured to: determine a target role corresponding to the first POS device in response to the configuration request, determine, based on the target role, target configuration information applicable to the first POS device, and send the target configuration information to the first POS device, wherein the target configuration information represents an order management function supported and/or an order management function disabled by the first POS device; and

the first POS device is further configured to perform a start procedure corresponding to the start instruction based on the target configuration information.

20. The system according to claim 19, wherein the service device is configured to determine the target role corresponding to the first POS device based on a start ranking of the first POS device in the plurality of POS devices.