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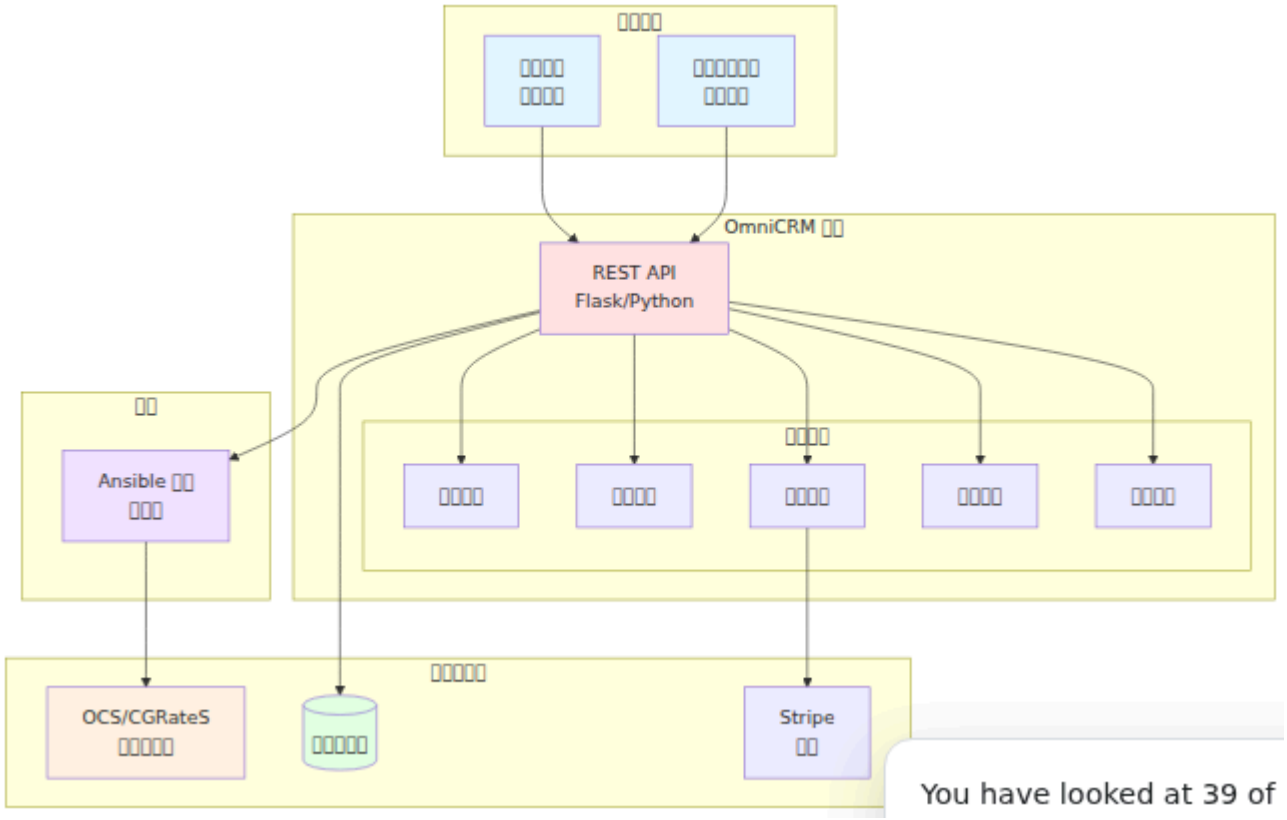
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> sk_live_a1b2c3d4e5f6g7h8i9j0k1l2m3n4o5p6q7r8s9t0

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```
curl -X GET "https://yourcrm.com/crm/customers" \
  -H "X-API-KEY: sk_live_a1b2c3d4e5f6g7h8i9j0k1l2m3n4o5p6q7r8s9t0"
```

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```
export
CRM_API_KEY="sk_live_a1b2c3d4e5f6g7h8i9j0k1l2m3n4o5p6q7r8s9t0"
```

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**□□ API □□**

```
GET /crm/api-keys
Authorization: Bearer <admin-token>
```

**□□ API □□**

```
POST /crm/api-keys
Authorization: Bearer <admin-token>
Content-Type: application/json

{
  "name": "New Integration",
  "description": "Third-party billing sync",
  "expiry_date": "2026-01-10",
  "permissions": ["view_customer", "view_service"]
}
```

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```
{
  "api_key_id": 123,
  "name": "New Integration",
  "api_key": "sk_live_a1b2c3d4e5f6g7h8i9j0",
  "status": "active",
  "created": "2025-01-10T10:00:00Z",
  "expiry_date": "2026-01-10T23:59:59Z"
}
```

### □□ API □□

```
DELETE /crm/api-keys/{api_key_id}
Authorization: Bearer <admin-token>
```

### □□ API □□

```
PATCH /crm/api-keys/{api_key_id}
Authorization: Bearer <admin-token>
Content-Type: application/json

{
  "name": "Updated Name",
  "expiry_date": "2026-12-31"
}
```

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□□□ Ansible □□□□□□□□□□ API □□□

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- `concepts_api` - API □□□□□□□□□
- `rbac` - □□□□□□□□□□□□
- `2fa` - □□□□□□□□□□□□□

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- `preferred_contact_method` = "email"□□□□□□
- `account_manager` = "<john.smith@company.com>"□□□□□□□□□□
- `onboarding_date` = "2025-01-15"□□□□□□□□□□
- `churn_risk_score` = "0.23"□□□□□□

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- `radius_username_format` = "email"□□□□RADIUS□□□
- `vlan_id` = "100"□□□□□□
- `ipv6_enabled` = "true"□□□□□□

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   - □□□□□□□□□□□□□□□□□□□□ `SF-12345`□
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- □□□□□□□□□□□ `external_system_id` ✓
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□□□□□ `create_customer_attribute`

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```
{
  "customer_id": 123,
  "attribute_name": "external_crm_id",
  "attribute_value": "SF-12345"
}
```

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```
{
  "attribute_id": 456,
  "customer_id": 123,
  "attribute_name": "external_crm_id",
  "attribute_value": "SF-12345",
  "created": "2025-01-04 10:30:00",
  "last_modified": "2025-01-04 10:30:00"
}
```

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□□□ `PATCH /crm/attribute/attribute_id/{attribute_id}`

□□□□□ `update_customer_attribute`

□□□□

```
{
  "attribute_value": "SF-54321"
}
```

## □ID□□□□

□□□ `GET /crm/attribute/attribute_id/{attribute_id}`

□□□□□ `view_customer_attribute`

□□□

```
{
  "attribute_id": 456,
  "customer_id": 123,
  "attribute_name": "external_crm_id",
  "attribute_value": "SF-12345",
  "created": "2025-01-04 10:30:00",
  "last_modified": "2025-01-04 10:30:00"
}
```

## □□□ID□□□□□□

□□□ `GET /crm/attribute/customer_id/{customer_id}`

□□□□□ `view_customer_attribute`

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```
[
  {
    "attribute_id": 456,
    "customer_id": 123,
    "attribute_name": "external_crm_id",
    "attribute_value": "SF-12345",
    "created": "2025-01-04 10:30:00",
    "last_modified": "2025-01-04 10:30:00"
  },
  {
    "attribute_id": 457,
    "customer_id": 123,
    "attribute_name": "billing_method",
    "attribute_value": "quarterly",
    "created": "2025-01-04 10:35:00",
    "last_modified": "2025-01-04 10:35:00"
  }
]
```

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□□□ `DELETE /crm/attribute/attribute_id/{attribute_id}`

□□□□□ `delete_customer_attribute`

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```
{
  "result": "success"
}
```

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```
import requests

customer_id = 123
attributes = [
    {"attribute_name": "external_crm_id", "attribute_value": "SF-
12345"},
    {"attribute_name": "billing_method", "attribute_value":
"quarterly"},
    {"attribute_name": "support_tier", "attribute_value":
"premium"}
]

for attr in attributes:
    attr["customer_id"] = customer_id
    requests.put(
        "https://api.example.com/crm/attribute/",
        json=attr,
        headers={"Authorization": "Bearer YOUR_TOKEN"}
    )
```

# □□□□□□□

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```
# □□□□□□□□□□□□□□□
PUT /crm/attribute/
{
  "customer_id": 123,
  "attribute_name": "legacy_crm_id",
  "attribute_value": "OLD-12345"
}

# □□□□□□□
PUT /crm/attribute/
{
  "customer_id": 123,
  "attribute_name": "migrated_date",
  "attribute_value": "2025-01-04"
}
```

## □□□□□□□

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```
# □□□□□□□
PUT /crm/attribute/
{
  "customer_id": 123,
  "attribute_name": "billing_cycle",
  "attribute_value": "quarterly"
}

# □□□□□□□□□□□□□□□□□□□□□□
attributes = GET /crm/attribute/customer_id/123
billing_cycle = next(
    (a['attribute_value'] for a in attributes if
a['attribute_name'] == 'billing_cycle'),
    'monthly'  # □□
)
```

## □□□□

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```
# □□IPv6□□
PUT /crm/attribute/
{
  "customer_id": 123,
  "attribute_name": "feature_ipv6_enabled",
  "attribute_value": "true"
}
```

# □□

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- `view_customer_attribute` - □□□□
- `create_customer_attribute` - □□□□□
- `update_customer_attribute` - □□□□□□
- `delete_customer_attribute` - □□□□

□□□ `rbac` □□□□□□□□□□□□□□□□□

# □□□□

□□□□□□□UI□

- □□□□□□□□□□□□□□API□□□
- □□□□□□□□□□□□□□
- □□□□□□□□□ `view_customer_attribute` □□

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- □□□□□ `update_customer_attribute` □□
- □□ attribute_id □□□□
- □□□□□□□□□□□□□

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# □□□□□□□□

□□□□□□□□ OmniCRM □□□□□□□□□

□□□ `/OmniCRM/OmniCRM-API/crm_config.yaml`

## □□□□□

```yaml
database:
  username: omnitouch
  password: omnitouch2024
  server: localhost
```

□□□

- `username` - MySQL □□□□□□□
- `password` - MySQL □□□□□□
- `server` - □□□□□□□□□□□ IP□□□□localhost□

□□□□□□□

- □□□□□□□□□□ `omnicrm`
- □□□□□3306□MySQL □□□
- □□□□□□□`mysql+pymysql://username:password@server/omnicrm`

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## HSS □□□□□□□□□□□□

□□□□ HSS ���□□□□□□□□□□

```
hss:
  hss_peers:
    - 'http://10.179.2.140:8080'
  apn_list: "1,2,3,4,5,6"
```

□□□

- `hss_peers` - □□□□□□□□ HSS □□□□
- `apn_list` - □□□□□□ APN ID □□□□□□□□

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## Mailjet □□□□□□

OmniCRM □□ Mailjet □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```yaml
mailjet:
  api_key: your_mailjet_api_key
  api_secret: your_mailjet_api_secret

  # □□□□□□□
  api_crmCommunicationCustomerWelcome:
    from_email: "support@yourcompany.com"
    from_name: "Your Company Support"
    template_id: 5977509
    subject: "□□□□□ YourCompany"

  # □□□□□□□
  api_crmCommunicationCustomerInvoice:
    from_email: "billing@yourcompany.com"
    from_name: "Your Company Billing"
    template_id: 6759851
    subject: "□□□□□ - "

  # □□□□□
  api_crmCommunicationCustomerInvoiceReminder:
    from_email: "billing@yourcompany.com"
    from_name: "Your Company Billing"
    template_id: 5977570
    subject: "□□□□□□□"

  # □□□□□□□□□□□/□□□□□
  api_crmCommunicationUserWelcome:
    from_email: "admin@yourcompany.com"
    from_name: "Your Company Admin"
    template_id: 6118112
    subject: "□□□□□□□"

  # □□□□□□□
  api_crmCommunicationUserPasswordReset:
    from_email: "security@yourcompany.com"
    from_name: "Your Company Security"
    template_id: 6735666
    subject: "□□□□□□□"

  # □□□□□□□□□□
  api_crmCommunicationUserPasswordResetSuccess:
    from_email: "security@yourcompany.com"
    from_name: "Your Company Security"
```

```
    template_id: 6118378
    subject: "□□□□□□□"

  # □□□□□□□
  api_crmCommunicationUserPasswordChange:
    from_email: "security@yourcompany.com"
    from_name: "Your Company Security"
    template_id: 6118423
    subject: "□□□□□□"

  # □□□□□
  api_crmCommunicationEmailVerification:
    from_email: "verify@yourcompany.com"
    from_name: "Your Company Verification"
    template_id: 6267350
    subject: "□□□□□□□□□□□□"

  # □□□□□□□
  api_crmCommunicationsBalanceExpired:
    from_email: "alerts@yourcompany.com"
    from_name: "Your Company Alerts"
    template_id: 7238252
    subject: "□□□□□□□□"

  # □□□□□□□
  api_crmCommunicationsBalanceLow:
    from_email: "alerts@yourcompany.com"
    from_name: "Your Company Alerts"
    template_id: 7238263
    subject: "□□□□□□□"

  # eSIM □□□□□
  # □ template_id □□□□□□□ Mailjet □□□□□□□□□□□□
  # □□□□□□ 0 □□□□□□□□ HTML □□
  api_crmCommunicationEsimDelivery:
    from_email: "support@yourcompany.com"
    from_name: "Your Company Support"
    template_id: 0
    subject: "□□ eSIM □□□□□"
```

**eSIM □□□□**

□ eSIM □□□□□□□□□□□□□

```
api_crmCommunicationEsimDelivery:
  from_email: "support@yourcompany.com"
  from_name: "Your Company Support"
  template_id: 0
  subject: "□□ eSIM □□□□"
```

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- □□□□□□□□□ eSIM
- □ eSIM □□□□□□□

□□□□□□□□ **Mailjet** □□□□□

- `{{ var:customer_name }}` - □□□□□
- `{{ var:iccid }}` - eSIM ICCID
- `{{ var:activation_code }}` - LPA □□□□□□□
- `{{ var:has_qr_code }}` - □□□□□□□□□ QR □□□□□□□ true
- `{{ var:has_activation_code }}` - □□□□□□□□□□□□□□□ true

□□□□□

□ `template_id` □□□ `0` □□OmniCRM □□□□ eSIM QR □□□□□□□□□ HTML □□□□□□□□□□ `branding` □□□□□□□□□□

## □□□□□□□□□□□

□ OmniCRM □□□□□ HTML □□□□□□ Mailjet □□□□□□□□□□□`branding` □□□□□□□□□

```
branding:
  brand_name: 'YourCompany'
  primary_dark: '#594712'
  dark_color: '#32280B'
  accent_bg: '#f5f0e0'
```

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| □ | □□ | □□ | □□ |
|---|---|---|---|
| `brand_name` | □□□□□□□□□□□□□□□□□□□□□□□□□□ | □□□ `from_name` | `'□□□□'` |
| `primary_dark` | □□□□□□□□□□□□□□□□□□ | `#594712` | `'#1a73e8'` |
| `dark_color` | □□□□□□□□□□□□□□□□□ | `#32280B` | `'#0d47a1'` |
| `accent_bg` | □□□□□□□□□□□□ | `#f5f0e0` | `'#e3f2fd'` |

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- eSIM □□□□□□□ `api_crmCommunicationEsimDelivery.template_id` □ `0` □□

□□ **Mailjet** □□□

1. □□ Mailjet □□□ (<https://app.mailjet.com>)
2. □□□ □□□ → □□
3. □□□□□□□□□□□□□
4. □□ □□ **ID**□□□□□
5. □□□ OmniCRM □□□□□□□□□□□□
6. □□ `crm_config.yaml` □□□□□ ID

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- `{{customer_name}}` - □□□□□□□□
- `{{service_name}}` - □□□□□□□□
- `{{invoice_id}}` - □□□□
- `{{invoice_amount}}` - □□□□□
- `{{due_date}}` - □□□□□
- `{{reset_link}}` - □□□□ URL
- `{{verification_link}}` - □□□□ URL
- `{{balance}}` - □□□□□□
- `{{expiry_date}}` - □□□□□□□□

## □□□□

```
provisioning:
  failure_list: ['admin@yourcompany.com', 'ops@yourcompany.com']
```

□□□

- `failure_list` - Ansible □□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□

## □□□□

```
invoice:
  template_filename: 'yourcompany_invoice_template.html'
```

□□□

□□□□ PDF □□□□□ Jinja2 HTML □□□

□□□□□ `/OmniCRM-API/invoice_templates/`

□□□□□□□□□□□□□□□□□□□□□□□□ □□ **PDF** □□ □□□

## CRM □□ URL

```
crm:
  base_url: 'http://localhost:5000'
```

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- □ Ansible □□□□□□ API □□
- □□□□□□□□□□□□□□□ CRM □□□
- □□□□ API □□□□□□ URL

□□□

- □□□`http://localhost:5000`
- □□□`https://api.yourcompany.com`

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- □□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□ URL
- □□□□□□□□□

## OCS □ CGRates □□

```
ocs:
  ocsApi: 'http://10.179.2.142:8080/api'
  ocsTenant: 'mnc001.mcc001.3gppnetwork.org'
  cgrates: 'localhost:2080'
```

□□□

- `ocsApi` - □□□□□□□ OCS API □□
- `ocsTenant` - □□□ OCS □□□□□□□□
- `cgrates` - CGRates JSON-RPC API □□□□□□□□□

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## SMSC □□□□□□□□

```
smsc:
  source_msisdn: 'YourCompany'
  smsc_url: 'http://10.179.2.216/SMSc/'
  api_key: 'your_smsc_api_key'
```

□□□

- □□□□□ SMS □□□□□□□□□□□□□□2FA □□□
- `source_msisdn` - □□□□□□□□□□ ID□□□□□□□□□□□
- `smsc_url` - SMSC □□ API □□

- `api_key` - SMSC API □□□□□

## □□□□□□

```
cbc_url: 'http://10.179.1.113:8080'
```

□□□ □□□□□□□□CBC□API □□□□□□□□□□

□□□□□□□□□□□□ `features_cell_broadcast`□

## JWT □□

```
jwt_secret: 'CHANGE_ME_ON_DEPLOYMENT'  # □ Ansible □□□□
```

□□□□

- □□□□□□□□□□□□□□□JWT□
- □□□□□□□□□□□ - □□□□□□□□
- □□□□/□□□□□□□□□□□
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□□□□□□□**Ansible** □□□□

□□ Ansible □□□□JWT ◆◆◆□□□□□□□

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2. □□□□□ Ansible □□□□□□□□□□
3. □□□□□□□□□□□□□□ - □□□□□□□□□□□□□

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- Git □□□□□□□□□□
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□□□□ Ansible □□□□□□□□□□□□□□□□□□

```
# □□□□□□□□□□□□□□□
python3 -c "import secrets; print(secrets.token_hex(32))"
# □
openssl rand -hex 32
```

□□□□ `crm_config.yaml`□

```
jwt_secret: 'your_generated_secret_here'
```

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- □□□□□□□□□□□□□□□ `CHANGE_ME_ON_DEPLOYMENT`
- □□□□□□□ - □□□□□□□□□□□□□□□□□□□□
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## Stripe □□□□

```
stripe:
  secret_key: 'sk_live_xxxxxxxxxx'
  publishable_key: 'pk_live_xxxxxxxxxx'
  currency: 'aud'
  statement_descriptor_suffix: 'YOURCOMPANY'
```

□□□

- `secret_key` - Stripe □□ API □□□□□□□□□□□
- `publishable_key` - Stripe □□□□□□□□□□□□□□□□
- `currency` - ISO 4217 □□□□□aud□usd□gbp□eur □□
- `statement_descriptor_suffix` - □□□□□□□□□□□□□□□

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- □□□□□`sk_test_...` □ `pk_test_...`□□□□□□
- □□□□□`sk_live_...` □ `pk_live_...`□□□□□□

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- □□□□□□□□□□□□ "YOURCOMPANY"
- □□ 22 □□□
- □□□□□□□□
- □□□□□ PDF □□□□□□□`YOURCOMPANY_12345.pdf`□

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## API □□□ IP □□□

□□□□□□□□□□□ IP □□□ API □□□

```
api_keys:
  "YOUR_API_KEY_1":
    roles: ["admin"]
    ips: ["127.0.0.1", "::1"]
  "YOUR_API_KEY_2":
    roles: ["customer_service_agent_1"]
    ips: ["127.0.0.1", "::1", "10.0.1.0/24"]

# IP □□□□□□□□□ API □□□
ip_whitelist:
  "10.179.2.142":
    roles: ["admin"]
```

□□□

- □□□□□□□□ API □□□□□□□□
- □ IP □□□□□□
- □□□ API □□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□

□□ **API** □□□

```
openssl rand -base64 48
```

□□□

- `admin` - □□□□□□□□□□□
- □ RBAC □□□□□□□□□□□□

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- □□□□□□□ API □□□□□ 32 □□□□
- □ IP □□□□□□□
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- □□□□ API □□
- □□□□□□ API □□□□□□

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- □□□□□□□□□□□□□

□□□□□□□□□ `administration_api_keys` □ `concepts_api`□

---

# □□□ UI □□□`crm_config.yaml` □□ `ui:`□

□□□□□□ □□ `omnicrm-ui` □□□□□□□□□□□□□□□□□□□□ API □□□

- □□□ `GET /crm/public/ui-config`□□□ ETag□UI □ `localStorage` □□□□
- □□□ logos□favicons □ Web □□□□□ `ui.assets_dir` □□□ `/crm/public/assets/...` □□
- □□ **`branding:`** □□ □□□□□□□□□□`ui.branding` □ `ui.theme` □ UI □□□□□

□□ `ui:` □□□□ `OmniCRM-API/crm_config.yaml`□□

```yaml
ui:
  version: '1'
  assets_dir: '/etc/omnicrm/deployment_assets'
  branding:
    client_name: '□□□□'
    portal_name: 'Omnitouch'
    self_care_name: '□□□□'
    logos:
      sm: logos/logoSm.png
      dark: logos/logoDark.png
      light: logos/logoLight.png
      favicon: logos/favicon.ico
  theme:
    primary: '#0D0629'
    secondary: '#CBB42B'
    font_family: Quicksand
  locale:
    default_language: en
    locale: en-GB
    default_country: Australia
  integrations:
    google_maps_api_key: ''
    google_tag_id: ''
    grafana:
      dashboard_ids: 'id1,id2'
      dashboard_labels: 'Ops,Finance'
  features:
    cbc_mode: no
    simplified_addresses: no
  links:
    faqs_url: 'https://example.com/faqs'
    support_url: 'https://example.com/support'
  web_apps:
    - name: GitHub
      url: https://github.com
      icon_path: webapp_icons/github.png
```

□□□ Omnitouch logo □ **`omnicrm-api`** □□□□□□□□ `/usr/share/omnicrm/deployment_assets/logos/`□□□□□ `deployment_assets` □□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `/etc/omnicrm/deployment_assets`□Ansible □□ `group_vars/deployment_assets/` □/□ `logo_*`□□□ `ui.branding.logos` □□□□□□□□□ `ui.assets_dir: '/etc/omnicrm/deployment_assets'`□□□□ `/etc/omnicrm` □□□□

□□□□□□□Docker□□API □□□□ `UI_ASSETS_DIR` □□□ `/app/deployment_assets`□`GET /crm/public/assets/` □□□ `logos/`□`login/` □ `webapp_icons/` □□□□□□□

□ **`VITE_*`** □□□ □□□□□□□□□□□□□□□ `ui:` □□□□ `.env.example` □□□□□□ `npm run dev` □ API □□□□□□□□□ `runtimeConfig.js` □□ `VITE_*`□

---

# □□□□ (.env)□□□□□□□

□□□ `/OmniCRM/OmniCRM-UI/.env`

## API □□□□□□□

```
# Google Maps API□□□□□□□□□□□□□□□□□□
VITE_GOOGLE_API_KEY=your_google_api_key

# □□ npm □□□□□□□□□□
BROWSER=none
```

## □□□□□□

```
# □□□□□□□□□□□□□□□□□stripe□paypal □□□
VITE_PAYMENT_VENDORS="stripe,paypal"

# Stripe □□□□□□□□□□ Stripe□□□□□
VITE_STRIPE_PUBLISHABLE_KEY=pk_test_xxxxx

# PayPal □□□ ID□□□□□ PayPal□□□□□
VITE_PAYPAL_CLIENT_ID=YOUR_PAYPAL_CLIENT_ID
```

□□□□□□□□

- `VITE_STRIPE_PUBLISHABLE_KEY` □□□ `crm_config.yaml` □□ `stripe.publishable_key` □□
- `VITE_PAYPAL_CLIENT_ID` □□□ `crm_config.yaml` □□ `paypal.client_id` □□

□□□ □□□ □□□ □□□□□□□ `VITE_*` □□□□□□□□□□ UI□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□ - □□□□□□

## □□□□□□□

```
# □□□□□
VITE_COMPANY_NAME="ShellFone"
VITE_PORTAL_NAME="ShellManager"
VITE_SELF_CARE_NAME="ShellCare"
VITE_COMPANY_TAGLINE="Phones with Shells"
```

□□□□□□ UI □□□□

- `COMPANY_NAME` - □□□□□□□□□□□□□□□□□□□□
- `PORTAL_NAME` - □□□/□□□□□□□□□□□“ShellManager”□
- `SELF_CARE_NAME` - □□□□□□□□□□□□□□□“ShellCare”□
- `COMPANY_TAGLINE` - □□□□□□□□□□□□□

## □□□□□□□□

```
# □□□□□
# □□□□□□□ar□ch□en□fr□gr□it□ru□sp
VITE_DEFAULT_LANGUAGE=en
VITE_LOCALE="en-GB"

# □□□□□□□□□□□□□□□
VITE_DEFAULT_LOCATION="Sydney, Australia"
VITE_DEFAULT_COUNTRY="Australia"

# □□□□
VITE_CURRENCY_CODE="GBP"
VITE_CURRENCY_SYMBOL="£"
```

□□□□□□

- `ar` - □□□□
- `ch` - □□

- `en` - □□□□□□
- `fr` - □□
- `gr` - □□□
- `it` - □□□□
- `ru` - □□
- `sp` - □□□□

□□□□□

- USD - $□□□□
- GBP - £□□□□
- EUR - €□□□□
- AUD - $□□□□□□□
- CAD - $□□□□

□□□ □□□ `crm_config.yaml` □□ `stripe.currency` □□□

# □□□□□□

```
# □□□□□□□□□□□□□□□
VITE_PRIMARY_COLOR=#405189

# □□□□□□□□□□□□□□□
# VITE_SECONDARY_COLOR=#2bFFcf
# VITE_TERTIARY_COLOR=#1a9fbf
# VITE_SUCCESS_COLOR=#28a745
# VITE_INFO_COLOR=#17a2b8
# VITE_WARNING_COLOR=#ffc107
# VITE_DANGER_COLOR=#dc3545
```

□□□□□

- `VITE_PRIMARY_COLOR` - □□□□□□□□□□□□□□□□□□□□□□□□
- `VITE_SECONDARY_COLOR` - □□□□
- `VITE_TERTIARY_COLOR` - □□□□
- `VITE_SUCCESS_COLOR` - □□□□□#28a745□
- `VITE_INFO_COLOR` - □□□□□#17a2b8□

- `VITE_WARNING_COLOR` - □□□#ffc107□
- `VITE_DANGER_COLOR` - □□□#dc3545□
- `VITE_LIGHT_COLOR` - □□□□#f8f9fa□
- `VITE_DARK_COLOR` - □□□□□#343a40□
- `VITE_PRIMARY_DARK_COLOR` - □□□□□□□□□□

□□□ □□□□□□□□□□#RRGGBB□

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- □□□□
- □□□□

## □□□□

```
# □□□□□□□
# □□□□Inter□Roboto□Open Sans□Lato□Quicksand□Poppins□Nunito□
Montserrat□Work Sans□Source Sans Pro□Raleway□Ubuntu□Josefin Sans□
HKGrotesk
# □□□Merriweather□Lora□Playfair Display
# □□□System□□□□□□□□
# □□□Quicksand
VITE_FONT_FAMILY=Quicksand
```

□□□ □□□□□□□ □ **OmniCRM-UI** □□□□□□□□□□□□□□□□□□□

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- Inter、Roboto、Open Sans、Lato、Quicksand、□□□□、Poppins、Nunito、Montserrat、Work Sans、Source Sans Pro、Raleway、Ubuntu、Josefin Sans、HKGrotesk

□□□□□

- Merriweather、Lora、Playfair Display

□□□□□

- System - □□□□□□□□□□□□□□□□□□□□□□□□□□

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1. □□□□□□□□ `OmniCRM-UI/src/assets/fonts/your-font-name/`
    - □□ WOFF2 □□□□□□□□□□□□□□□□
    - □□□□□□□□300、400、500、600、700□□□□□□□□□
    - □□□□□□`your-font-name-300.woff2`、`your-font-name-400.woff2` □□
2. □ `OmniCRM-UI/src/assets/scss/fonts/_google-fonts.scss` □□□ **@font-face** □□

```
//
// □□□□□□□□ - □□
//

@font-face {
  font-family: 'Your Font Name';
  font-style: normal;
  font-weight: 400;
  font-display: swap;
  src: url("../../fonts/your-font-name/your-font-name-
400.woff2") format('woff2');
}

@font-face {
  font-family: 'Your Font Name';
  font-style: normal;
  font-weight: 700;
  font-display: swap;
  src: url("../../fonts/your-font-name/your-font-name-
700.woff2") format('woff2');
}
```

3. □ **.env** □□□□□□□□□

```
VITE_FONT_FAMILY=Your Font Name
```

□□□□□□□□

- 300 - □□□□□□□□□□□□□□□
- 400 - □□□□□□□□□□□□□□
- 500 - □□□□□□□□□□□
- 600 - □□□□□□□□□□□□
- 700 - □□□□□□□□□□□□□□□

# Web □□□□□□

□□□□ 6 □□□□□□□ Web □□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
# Web □□ 1□GitHub
VITE_WEB_APP_1_NAME="GitHub"
VITE_WEB_APP_1_URL="https://github.com"
VITE_WEB_APP_1_ICON_PATH="resources/webapp_icons/github.png"

# Web □□ 2□Xero
VITE_WEB_APP_2_NAME="Xero"
VITE_WEB_APP_2_URL="https://go.xero.com/"
VITE_WEB_APP_2_ICON_PATH="resources/webapp_icons/xero.png"

# Web □□ 3-6□□□□□
# □□ NAME□URL □ ICON_PATH □□□□□□□□□□
```

□□□

- `VITE_WEB_APP_N_NAME` - □□□□
- `VITE_WEB_APP_N_URL` - □□ URL
- `VITE_WEB_APP_N_ICON_PATH` - □□□□□□□□□□ public/□

□□□□□ GitHub□Xero□Monday.com□Gmail□MailJet□Slack

## Grafana □□□□□

OmniCRM □ Grafana □□□□□□□□□□□□□□ `grafana_access` □□□□□□□□□ Grafana□□□□ `/grafana`□□□□□□□□□□□□□□□□□□□□□□□□ OmniCRM □□□□

```
# Grafana □□□□□
# □□□ ID□□□□□□ - □ /grafana/d/ID/name URLs □□
VITE_GRAFANA_DASHBOARD_IDS=abc123,def456,ghi789

# □□□□□□□□□□□□□□□ ID □□□□□□□
VITE_GRAFANA_DASHBOARD_LABELS=□□□□,□□□□,□□□□
```

□□□

- `VITE_GRAFANA_DASHBOARD_IDS` - □ URL □□□□□□ Grafana □□□ ID □□□□□□□
- `VITE_GRAFANA_DASHBOARD_LABELS` - □□□□□□□□□□□□□□□□□□ ID □□□□□□

□□□□□□□□ **ID**□

□□ Grafana □□□□□□□□URL □□□□ `/grafana/d/abc123/dashboard-name`□□□□ ID □ `/d/` □□□□□□□□□□□□□□□□□□□□ `abc123`□□

□□□

□□□□□□□□□□□□□□□ OmniCRM □□□□“□□□”□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ OmniCRM □□□□□□

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□□□□□□□□ URL □ `http://your-server/grafana/d/system-overview-123/system-metrics`□□□□

- □□□ ID□`system-overview-123`
- □□□□□□□□□□□□□□□□□□□□□“□□□□”

□□□

- ID □□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□
- □□□□ `grafana_access` □□□□□□□□□□□□□□□
- □□□□□□□□□□□ UI

# □□□□□ URL

```
# □□□□□□□□ URL
VITE_FAQS_URL=https://support.yourcompany.com/faqs
VITE_SUPPORT_URL=https://support.yourcompany.com
```

□□□ □ UI □□□□□□□□□□□□□□□

# □□□□

```
# □□□□□□□□yes|no□
VITE_ALLOW_SOCIAL_LOGINS=yes
```

□□□

- `yes` - □□□□□□□□□□Google□Facebook □□
- `no` - □□□□□□□

□□□ □□□□□□□□□□□□□□□□□

# □□□□□

```
# Google Analytics 4 □ Google Tag Manager□□□□
# □□ GA4□□□□□□□G-XXXXXXXXXX
# □□ GTM□□□□□□□GTM-XXXXXXX
VITE_GOOGLE_TAG_ID=G-XXXXXXXXXX
```

□□□ □□ Google Analytics 4□GA4□□ Google Tag Manager□GTM□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□

- **GA4 □□ ID□** `G-XXXXXXXXXX` - □□ Google Analytics 4 □□
- **GTM □□ ID□** `GTM-XXXXXXX` - □□ Google Tag Manager
- □□□ □□□□□□□□□□□

□□□□□

□□□□□ ID □□□□□□□□□□□□

- □ `G-` □□□ ID □□□ Google Analytics 4
- □ `GTM-` □□□ ID □□□ Google Tag Manager
- □□□□□□□□□□□□□

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- □□□□□□□ - □□□□□□□□□□□□□□□ UI

□□□□□

1. □□□□□□□ **ID**□

   *□□ Google Analytics 4□*

   - □□ Google Analytics
   - □□□□□□ GA4 □□
   - □□ □□□ → □□□
   - □□□□□ Web □
   - □□ □□ **ID**□□□□□`G-XXXXXXXXXX`□

   *□□ Google Tag Manager□*

   - □□ Google Tag Manager
   - □□□□□□□□
   - □□ □□ **ID**□□□□□`GTM-XXXXXXX`□

2. □□□ **.env** □□□

   ```
   VITE_GOOGLE_TAG_ID=G-XXXXXXXXXX
   ```

3. □□□□ **UI**□

   ```
   cd OmniCRM-UI
   npm run build
   ```

4. □□□□□

   - □□□□□□□□□□□□□□□□
   - □□□□□□□□□□□□□□□□□□
   - □□ Google Analytics □□□□□□□□□□□

□□□□ **-** □□□□□□□□□

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□□ **-** □□□□□□□□

```
import { trackEvent } from './utils/googleAnalytics';

// □□□□□□□
const handleCheckout = () => {
  trackEvent('checkout_initiated', {
    cart_value: 99.99,
    item_count: 3,
    page: '/cart'
  });
  // □□□□□□□
};
```

□□ - □□□□□□□□

```
import { trackEvent } from './utils/googleAnalytics';

const handleFormSubmit = (formType) => {
  trackEvent('form_submission', {
    form_type: formType,
    timestamp: new Date().toISOString()
  });
};
```

□□ - □□□□□□□□□□

```
import { trackPageView } from './utils/googleAnalytics';

// □□□□□□□□□□□□□□□□□□□□□□□□□□□□
trackPageView('/virtual/page-path', '□□□□');
```

□□□□□□□

| □□ | □□ | □□ |
| --- | --- | --- |
| `initializeGoogleTracking()` | □□□□□□□□□□□□□ | □□□□□□□□ |
| `trackEvent(eventName, eventParams)` | □□□□□□□□ | □□□□□□□□□□□□□□□□□□□□ |
| `trackPageView(path, title)` | □□□□□□□□□ | □□□□□□□□□□□□□□□□□□ |

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Google Analytics □□□□□□□□□□□□□□□□□□□□□□□□□□□□

- **GDPR**□□□□ - □□□□□□□□□□□□□□□□□□□□□□□□
- **CCPA**□□□□□□□□ - □□□□□□□□□□□□□□
- □□□□ - □□□□□□□□□□□□□ Google Analytics
- **Cookie** □□ - □□□□□□□□□□□□ Cookie □□□□
- □□□□ - □ Google Analytics □□□□□□□□□□□□□□□□

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| GA □□□□□□□□ | □□ ID □□□ | □□ ID □□□□□□□ G-XXXXXXXXXX □ GTM-XXXXXXX |
| □□□□□□□□□□□□ | □□□□□□ ID | □□ .env □□□□□□□□□ |
| □□□□□□□□ | UI □□□ .env □□□□□□ | □□ `npm run build` □□□ UI |
| □□□□□□ | □□□□□□□□□ | □□□□□□□□□□□□□□□□□□□□ |
| □□□□□ | GA □□□□□□ | □□□□□□□□□□□□□□ |

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- □□□□□□□□< 50KB □□□□□
- □□□□□□□□□□□□□□□□
- □□ `VITE_GOOGLE_TAG_ID` □□□□□□□□□□

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- □□□□□ `OmniCRM-UI/src/utils/googleAnalytics.js`
- □□□□□□□□ `OmniCRM-UI/src/utils/usePageTracking.js`
- □□□□□ `App.js` □ `index.js` □□□□

# □□□□□□□

```
VITE_TOPUP_PRICE_PER_DAY=10
```

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□□□

- `VITE_TOPUP_PRICE_PER_DAY` - □□□□□□□□□□□□□

□□□ □□□□□ `10` □□□□ USD□□□□□□□ $10 □□□□□

□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□ `features_topup_recharge`□

---

# □□□□□□□□

OmniCRM □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□□□□□□

□□□□□ `/OmniCRM-UI/src/assets/images/omnitouch/` □□□□□□□□□□

□□□□□□□□□□□□

- `DefaultLogoDark.png` - □□□□□□□□□□□□□□□□
- `DefaultLogoLight.png` - □□□□□□□□□□□□□□□□

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- `logoSm.png` - □□□□□□□□□□□□□□□□□□100x100px□
- `logoDark.png` - □□□□□□□□□□□□□□□□□□200x50px□
- `logoLight.png` - □□□□□□□□□□□□□□□□□□□□□□□□200x50px□

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```
// □□ Header.js
const tryImport = (filename) => {
    try {
        return require(`../assets/images/omnitouch/${filename}`);
    } catch (err) {
        return null; // □□□□□
    }
};

const userLogoSm = tryImport("logoSm.png");
const userLogoDark = tryImport("logoDark.png");
const userLogoLight = tryImport("logoLight.png");
```

□□□□□□□□□

- **logoSm.png** - □□□□□□□□□□□□□□□□□□□□
- **logoDark.png** - □□□□□□□□□□□□□□□□□□□□□□□□
- **logoLight.png** - □□/□□□□□□□□□□□□□□□□□□□□

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1. □□□□□□□□□□□
    - □□ PNG □□□□□□□□□

- □□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□

2. □□□ **OmniCRM**□

```
# □□□□□□□□□□□ omnitouch □□□□
cp /path/to/your/logoSm.png OmniCRM-
UI/src/assets/images/omnitouch/
cp /path/to/your/logoDark.png OmniCRM-
UI/src/assets/images/omnitouch/
cp /path/to/your/logoLight.png OmniCRM-
UI/src/assets/images/omnitouch/
```

3. □□□□ **UI**□

```
cd OmniCRM-UI
npm run build
```

4. □□□□□

- □□□□□□□□□□□□□ `logoDark.png`□
- □□□□□□□□□□□□□ `logoLight.png`□
- □□□□□□□□□□□□ `logoSm.png`□
- □□□□□□□□□□□ `logoLight.png`□

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- □□□ - □□□□□□□□□□□□□
- □□ - □□□□□□□□ PNG
- □□□ - □□ DPI □□□□ 2 □□□□
- □□□ - □□□□□□□□□□□□□□□□□□□

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□□□ `/OmniCRM-UI/src/pages/AuthenticationInner/authCarousel.js`

□□□□□

```
import logoLight from "../../assets/images/logo-light.png";

// □□□□□□□□□□□□□□□
<img src={logoLight} alt="" height="18" />
```

□□□□□□□□□□

1. □ `/OmniCRM-UI/src/assets/images/` □□□ `logo-light.png`
2. □□□□□□ CSS □□□ `.auth-one-bg` □
3. □□ `authCarousel.js` □□□□□□□□□□□□□□□□

□□□□□□

```
/* □□□□□□□□ CSS */
.auth-one-bg {
    background-image: url('/assets/images/custom-auth-bg.jpg');
    background-size: cover;
    background-position: center;
}
```

---

# □□ PDF ����

OmniCRM □□ Jinja2 HTML □□□ WeasyPrint PDF □□□□□□□ PDF □□□

## PDF □□□□□□

1. □□□□□
   - □□□□□□ `crm_config.yaml` □□ `invoice.template_filename` □□□
   - □□□ `/OmniCRM-API/invoice_templates/` □□□□
2. □□□□□

- □□□□□□□□□□□□□ID□□□□□□□□□□□□
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3. □□□□□

- Jinja2 □□□□□□□□□ HTML □□
- □□□ `{{ invoice_number }}`□`{{ total_amount }}` □□□□
- □□□ HTML □□□ `invoice_templates/rendered/` □□□□

4. **PDF** □□□

- WeasyPrint □□□□ HTML □□□ PDF
- PDF □□ CSS □□□□□□□□□□□□/□□
- PDF □□□□□□□□□□□□

5. □□□

- PDF □ Base64 □□□□□□ `Invoice_PDF_Cache` □□
- □□ SHA256 □□□□□□□□□□
- □□□□□□□□□ PDF□□□□□□

6. □□□□□

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# □□□□□□

□□□□□□□□□□□□□□□□ Jinja2 HTML □□□

□□□□□ `/OmniCRM-API/invoice_templates/yourcompany_invoice_template.html`

□□□□□

```
{
    'invoice_number': 12345,
    'date': '2025-01-04',
    'client': {
        'name': 'John Smith',
        'address': {
            'address_line_1': '123 Main St',
            'city': 'Sydney',
            'state': 'NSW',
            'zip_code': '2000',
            'country': 'Australia'
        }
    },
    'transaction_list': [
        [
            {
                'transaction_id': 1,
                'title': '□□□□ - □□',
                'retail_cost': 30.00,
                'wholesale_cost': 10.00,
                'created': '2025-01-01'
            },
            {
                'transaction_id': 2,
                'title': '□□□□□□ - 5GB',
                'retail_cost': 15.00,
                'wholesale_cost': 5.00,
                'created': '2025-01-15'
            }
        ]
    ],
    'total_amount': 45.00,
    'due_date': '2025-01-31',
    'start_date': '2025-01-01',
    'end_date': '2025-01-31',
    'paid': False,
    'void': False
}
```

□□□□□□□

```
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <title>□□ {{ invoice_number }}</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            margin: 40px;
        }
        .header {
            text-align: center;
            margin-bottom: 30px;
        }
        .invoice-details {
            margin-bottom: 20px;
        }
        table {
            width: 100%;
            border-collapse: collapse;
        }
        th, td {
            border: 1px solid #ddd;
            padding: 12px;
            text-align: left;
        }
        th {
            background-color: #405189;
            color: white;
        }
        .total {
            text-align: right;
            font-size: 18px;
            font-weight: bold;
            margin-top: 20px;
        }
    </style>
</head>
<body>
    <div class="header">
        <h1>□□</h1>
    </div>
```

```
    <div class="invoice-details">
        <p><strong>□□□□□</strong> {{ invoice_number }}</p>
        <p><strong>□□□</strong> {{ date }}</p>
        <p><strong>□□□□</strong> {{ due_date }}</p>
        <p><strong>□□□□□</strong> {{ start_date }} □ {{ end_date
}}</p>
    </div>

    <div class="customer-details">
        <h3>□□□□□□</h3>
        <p>{{ client.name }}</p>
        <p>{{ client.address.address_line_1 }}</p>
        <p>{{ client.address.city }}, {{ client.address.state }}
{{ client.address.zip_code }}</p>
        <p>{{ client.address.country }}</p>
    </div>

    <table>
        <thead>
            <tr>
                <th>□□</th>
                <th>□□</th>
                <th>□□</th>
            </tr>
        </thead>
        <tbody>
            {% for transaction in transaction_list[0] %}
            <tr>
                <td>{{ transaction.title }}</td>
                <td>{{ transaction.created }}</td>
                <td>${{ "%.2f"|format(transaction.retail_cost) }}
</td>
            </tr>
            {% endfor %}
        </tbody>
    </table>

    <div class="total">
        <p>□□□□□□${{ "%.2f"|format(total_amount) }}</p>
    </div>

    {% if paid %}
    <div style="text-align: center; color: green; font-weight:
bold;">
```

```
        □□□
    </div>
    {% endif %}

    {% if void %}
    <div style="text-align: center; color: red; font-weight:
bold;">
        □□
    </div>
    {% endif %}
</body>
</html>
```

□□□□□□□□

- □□□□□□□□□□ - `file:///absolute/path/to/image.png`
- □□ **CSS** - WeasyPrint □□□□□□□□□□□□
- □□□□□□□□□□ - □□ `invoice_templates/rendered/` □□ HTML
- □□ - □□ `<div style="page-break-after: always;"></div>` □□□□□□
- □□□□□ - □□ `@page` CSS □□□□□□
- □□□□□ - □□ Jinja2 □□□□ `{{ "%.2f"|format(amount) }}`

# □□□□□□□□□

1. □□□□□□□

   ```
   cd /OmniCRM/OmniCRM-API/invoice_templates
   cp sample_invoice_template.html
   yourcompany_invoice_template.html
   ```

2. □□□□□

   - □□□□□□□□□□□□□□□
   - □□□□□□□□□□□□□□□□□□□□
   - □□□□□□□□□□□□□□□□□□□□□□□□□

3. □□□□□

□□ `crm_config.yaml`□

```
invoice:
  template_filename: 'yourcompany_invoice_template.html'
```

4. □□□□□□□□

   - □ CRM □□□□□□□□
   - □□ PDF □□□□□
   - □□ `invoice_templates/rendered/{invoice_id}.html` □□□□□

5. □□□□□□□□□□□□□□□

   □□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
-- □□□□□□□□ PDF□□□□□□□□□
DELETE FROM Invoice_PDF_Cache;
```

## PDF □□□□

□□□□□□□□OmniCRM □□□□□ PDF□

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- □□□□□ - □□ PDF□□□□□□
- □□□□ - □□□□□□□□ PDF□□□□□□
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□□□□□

- Base64 □□□ PDF □□□ `Invoice_PDF_Cache` □□
- SHA256 □□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□

□□□□□□□□

```python
# □ OmniCRM API □ Python shell □
from services.invoice_service import cleanup_old_pdf_cache,
invalidate_invoice_cache
from utils.db_helpers import get_db_session

session = get_db_session()

# □□□□□ 30 □□□□□
result = cleanup_old_pdf_cache(session, days_old=30)
print(result)  # {'status': 'success', 'deleted_count': 15}

# □□□□□□□□□□□
invalidate_invoice_cache(session, invoice_id='12345')
```

**API □□□**

□□/□□□□ PDF□

GET /invoice/pdf/{invoice_id}

□□□ PDF □□□□□□□□□□ Stripe □□□□□□

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- □□□□□□□□□□□□□□□□□□
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- □□□□/□□□□□□□□□□

---

# □□□□□□

## □□ (crm_config.yaml)

1. □□ `OmniCRM-API/crm_config.yaml`
2. □□□□
3. □□ API □□□

```
cd OmniCRM-API
sudo systemctl restart omnicrm-api
# □
./restart_api.sh
```

□□□□□□□□□□□□

## □□ (.env)

1. □□ `OmniCRM-UI/.env`
2. □□□□
3. □□□□ UI□

```
cd OmniCRM-UI
npm run build
```

4. □□ UI □□□ Web □□□

□□□□□

□□□ `npm start` □□□□□□□□□□□□□□□□□□□□□□□□

---

# □□□□□□

## □□□

- □□□□□□□ - □□□□□□□□□□□□□□□ `.gitignore`
- □□□□□□ - □□ 16 □□□□□□□□□□□□□□□□□□
- □□□□□□□ - □□□□□□□□□□
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- □□ **API** □□□□ - □□□□□□□□□
- □□□□ **IP** □□□ - □□□□ API □□□□□□□□□□□□

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## □□

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- □□ **Grafana** - □□□□□□□□□□□

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- □□□□ - □□ UI □□□□□□□□□□
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- □□□ □□□□□□□ UI □□□□□
- □□□ □□□□□□□□ API/UI □□

**YAML** □□□□

- □□□ □□□ YAML □□□□□□□□□□
- □□□ □□□□ YAML □□□ `yamllint crm_config.yaml`

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**Stripe** □□□□□□□

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- □□□ □□ `publishable_key` □□□□□□□□□

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- □□□ □□□ Mailjet □□□□□ ID
- □□□ □□ Mailjet API □□/□□□□□□□ ID □□□□

**PDF** □□□□□

- □□ WeasyPrint □□□□□□`pip install weasyprint`
- □□□□□□□□□□ `crm_config.yaml` □□
- □□ `invoice_templates/rendered/` □□□ HTML ��□□□
- □□ API □□□□□ Jinja2 □□□□

□□□□□□ **PDF** □□

- □□□□□□□□□`file:///full/path/to/image.png`
- □□□□□□□□□□□
- □□□□□□□PNG □ JPEG □□□
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- □□□□□□□□□□□□ `invalidate_invoice_cache()`

- □□□□□□□□□□□□□□□□
- □□□□□□□□□ `Invoice_PDF_Cache` □□□□

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□□□ OmniCRM □□□□□□□□□□

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- [ ] □□ `.env.example` □ `.env`
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- [ ] □□ CGRates □□
- [ ] □□ `crm_config.yaml` □□□□□□□□□
  - [ ] □□□□□
  - [ ] □□□□
  - [ ] Mailjet API □□□□□ ID
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  - [ ] □□□□□□□□
  - [ ] CRM □□ URL□□□□□□□
  - [ ] OCS/CGRates □□
  - [ ] SMSC □□
  - [ ] □□□□ JWT □□□□
  - [ ] Stripe □□□□□□□□□□□
  - [ ] API □□□ IP □□□

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- [ ] □□ `OmniCRM-UI/.env.example` □ `OmniCRM-UI/.env`
- [ ] □□ Google Maps API □□
- [ ] □□ Stripe □□□□□
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- [ ] □□ Google Analytics/Tag Manager □□ ID□□□□

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- [ ] □□□□□□□□logoSm.png□logoDark.png□logoLight.png□
- [ ] □□□□□□□ `OmniCRM-UI/src/assets/images/omnitouch/`
- [ ] □□□□□□□□□□ HTML
- [ ] □□□□□□□□□ `OmniCRM-API/invoice_templates/`
- [ ] □□ `crm_config.yaml` □□□□□□□□□□□
- [ ] □□□□ PDF □□
- [ ] □□□□ UI□`npm run build`

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- [ ] □□ API □□□ IP □□□
- [ ] □□ SSL/TLS □□
- [ ] □□□□□□□ HTTPS
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- [ ] □□ impersonation □□□□□
- [ ] □□ OCS □□□□□□□□
- [ ] □□ ActionPlan □□□□□
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- [ ] □□ CGRates
- [ ] □□ OmniCRM API
- [ ] □□ OmniCRM UI
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- [ ] □□□□□Grafana□Prometheus□
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- RBAC □□□□□
- □□□□□
- Ansible □□

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- □□□□□□□
- □□□□□ impersonation
- *□□□□□□□*
- `administration_api_keys` - API □□□□
- `integrations_mailjet` - □□□□□□
- `concepts_api` - API □□□□

# OmniCRM□□□□□□

OmniCRM□□□□□□

□□□□SIM□□□□

□□□ □□□□□`inventory_items_list: "['SIM Card', 'Mobile Number']"`□□□□□□□□□□“SIM Card”□“Mobile Number”□□□□□□□□□□□□□□□□□□□□

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  - □□□□□□“IMSI”□□SIM□□“□□□”□□□□□“□□□□”□□□□
- □□□□**3-20**□□□□□□□□□□□□□□□□□□□□□□
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- □□□“SIM□”
- □□□□□2.50
- □□□□□10.00
- □□□□1□□□“ICCID”
- □□□□2□□□“IMSI”
- □□□□3□□□“SIM□□”□□□/eSIM□

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- □□□“□□□□”
- □□□□□1.00
- □□□□□0.00
- □□□□1□□□“□□□□”
- □□□□2□□□“□□□□”
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□□□□**CPE**□□□

- □□□“□□□□CPE”
- □□□□□250.00
- □□□□□450.00
- □□□□1□□□“MAC□□”
- □□□□2□□□“□□□”
- □□□□3□□□“□□□□”
- □□□□4□□□“□□□”
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**GPON ONT**□□□

- □□□“GPON ONT”
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- □□□□1□□□“□□□”
- □□□□2□□□“MAC□□”
- □□□□3□□□“PON□□”

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□□□□□**InventoryTemplate**□□□□□□□□

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- **inventory_id** - □□□□□□□□□□□□□□□□□□□□
- **item** - □□□□□□□□□□□□□□□□□□□□□□□□“SIM□”□“□□□□□□”□“□□□□”□
- **inventory_template_id** - □□□□□□□□□□□□□□□□□□
- **customer_id** - □□□□□□□□□□□□□□□□ID□□□□□□
- **service_id** - □□□□□□□□□□□□□□□□ID□□□□□□
- **item_location** - □□□□□□□□□□□□□□□□
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- **item_state** - □□□□□□□□□□□□□□□□□□
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- **itemtext1** - □□□□□□□□□□□□□□□□□□□□□□□□`itemtext1_label`□□□
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  - □□□□□SIM□□□□□“ICCID”
  - □□□□□□□□□□□□□□□“□□□□”
- **itemtext2□itemtext20** - □□□□□□□□□□□□□□□□□□□□□□□□□□
  - □□□□□□□□□itemtext2□□□“□□□”
  - □□□SIM□□itemtext2□□□“IMSI”
  - □□□□□□□□□itemtext3□□□“□□□□”

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- **zip_code** - □□□□/ZIP□□
- **country** - □□□□

□□□□□□**Web UI**□□□□□

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- **google_maps_place_id** - □□□Google Maps□□ID
- **plus_code** - □□□□□Google Maps Plus□□□□□□□□□□
- **latitude** - □□□□□□□□□□
- **longitude** - □□□□□□□□□□

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□□□□□□□**URL**

`management_url`□□□□□□□□□□□□□□URL□

- **management_url** - □□□□□□□URL
  - □□□□□Web□□URL□□□□`https://192.168.1.1`□□□□□□□□□□ONT□CPE□
  - **eSIM**□□□eSIM□□□LPA□□□□□□□□□□□□□□□□□`LPA:1$smdp.example.com$ACTIVATION-CODE-HERE`□
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    - **eSIM**□□□□□□□□CRM□□□□□□□□□□□□□□□□eSIM□□
    - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- **management_username** - □□□□□□□□□□□□□
- **management_password** - □□□□□□□□□□□□□□□□□□□

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- **config_content** - □□□□□□□□□□□□□□□□□□□□□□
    - □□□□□□□□□□□□□□□□□□□□

```
{
  "inventory_id": 1001,
  "item": "SIM Card",
  "inventory_template_id": 5,
  "itemtext1": "89612345678901234 56",
  "itemtext2": "310120123456789",
  "itemtext3": "Physical",
  "item_location": "Warehouse A, Shelf 3",
  "item_state": "Assigned",
  "customer_id": 456,
  "service_id": 789,
  "wholesale_cost": 2.50,
  "retail_cost": 10.00,
  "sold_date": "2025-01-15T10:30:00Z",
  "inventory_notes": "Activated on 2025-01-15"
}
```


**□□2□□□eSIM□□**


```
{
  "inventory_id": 1002,
  "item": "eSIM",
  "inventory_template_id": 6,
  "itemtext1": "89612345678901234 57",
  "itemtext2": "310120123456790",
  "itemtext3": "eSIM",
  "item_location": "Virtual Inventory",
  "item_state": "Assigned",
  "customer_id": 457,
  "service_id": 790,
  "management_url": "LPA:1$smdp.example.com$ACTIVATION-CODE-
ABC123XYZ",
  "wholesale_cost": 0.00,
  "retail_cost": 0.00,
  "sold_date": "2025-01-16T14:20:00Z",
  "inventory_notes": "eSIM profile ready for activation"
}
```


□□□eSIM□□□□□□□UI□□□□□□□LPA□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□eSIM□□□

**□□3□□□□□□□□□CPE□ - □□□□**

```
{
  "inventory_id": 2001,
  "item": "Fixed Wireless CPE",
  "inventory_template_id": 10,
  "itemtext1": "AA:BB:CC:DD:EE:FF",
  "itemtext2": "FW2024-12345",
  "itemtext3": "v2.4.1",
  "itemtext4": "Ubiquiti",
  "itemtext5": "LiteBeam AC Gen2",
  "item_location": "Customer Site",
  "item_state": "Assigned",
  "customer_id": 789,
  "service_id": 1234,
  "address_line_1": "123 Main Street",
  "address_line_2": "Apt 4B",
  "city": "Sydney",
  "state": "NSW",
  "zip_code": "2000",
  "country": "Australia",
  "latitude": "-33.8688",
  "longitude": "151.2093",
  "management_url": "https://192.168.100.1",
  "management_username": "admin",
  "management_password": "encrypted_password_here",
  "config_file_path": "/configs/cpe/fw2024-12345.conf",
  "inventory_notes": "Installed 2025-01-10. Customer reports
excellent signal. Pointing: Azimuth 45°, Elevation 15°"
}
```


**□□4□□□□□□□GPON ONT**

```
{
  "inventory_id": 3001,
  "item": "GPON ONT",
  "inventory_template_id": 15,
  "itemtext1": "ALCL12345678",
  "itemtext2": "AA:BB:CC:DD:EE:FF",
  "itemtext3": "OLT-1, PON 3, ONT 42",
  "itemtext4": "Nokia G-010G-A",
  "item_location": "Customer Premises",
  "item_state": "Assigned",
  "customer_id": 321,
  "service_id": 654,
  "address_line_1": "456 Fiber Lane",
  "city": "Melbourne",
  "state": "VIC",
  "zip_code": "3000",
  "country": "Australia",
  "google_maps_place_id": "ChIJ1234567890",
  "plus_code": "4RRH+2C Melbourne VIC",
  "latitude": "-37.8136",
  "longitude": "144.9631",
  "management_url": "https://192.168.1.1",
  "management_username": "admin",
  "config_content": "# ONT Configuration\nwlan-ssid:
HomeNetwork\nwlan-password: encrypted...",
  "wholesale_cost": 45.00,
  "retail_cost": 0.00,
  "inventory_notes": "Provisioned 2025-01-20. Optical power:
-22dBm"
}
```


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□□��□□`management_url`□□□□□□□□□2□3□4□□□UI□□□□□□

- □□□□URL□LPA□□□□□□□□□
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- **eSIM**□□□□□2□□□□□□□□□□□□□□□□□□□eSIM□□

- □□□□□□□□□□3□4□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□IP□□

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```
{
  "inventory_id": 4001,
  "item": "Phone Number",
  "inventory_template_id": 20,
  "itemtext1": "+61412345678",
  "itemtext2": "Melbourne",
  "itemtext3": "Mobile",
  "item_location": "Australia - VIC",
  "item_state": "Assigned",
  "customer_id": 555,
  "service_id": 888,
  "wholesale_cost": 1.00,
  "retail_cost": 0.00,
  "inventory_notes": "Ported from Telstra on 2025-01-05"
}
```

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`item_state`□□□□□□□□□□□□□□□□

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# API □□

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```
PUT /crm/tag/
{
  "tag_text": "VIP Customer",
  "tag_hex_color": "FFD700",
  "tag_link": "https://example.com/vip",
  "tag_active_date": "2025-01-01 00:00:00",
  "tag_deactivate_date": "2099-12-31 23:59:59",
  "customer_id": 12
}
```

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```
PATCH /crm/tag/tag_id/{tag_id}
{
  "tag_text": "Updated Tag Text",
  "tag_hex_color": "FF0000"
}
```

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```
GET /crm/tag/customer_id/{customer_id}
```

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```
DELETE /crm/tag/tag_id/{tag_id}
```

# OmniCRM □□□□

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OmniCRM □□□□□□□ BSS/OSS □□□□□□□□□□□□□□□□□□□□

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# 2. API □

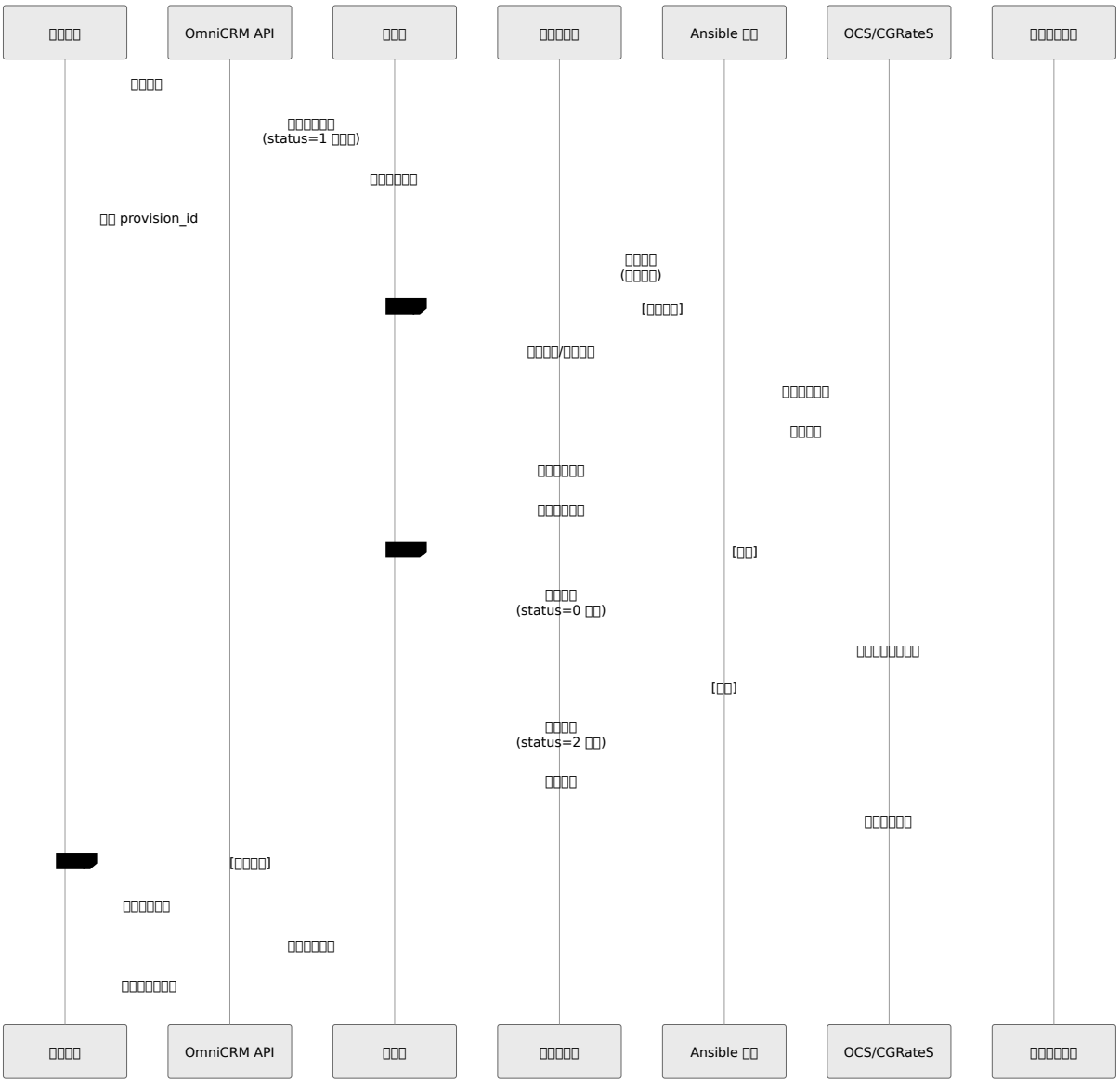
**OmniCRM API (Flask/Python)**

- □□□□□ RESTful API
- OpenAPI/Swagger □□
- □□ JWT □□□
- □□□□□□□□
- WebSocket □□□□□□

□□ **API □□:**

- `/crm/customer/*` - □□□□
- `/crm/service/*` - □□□□
- `/crm/product/*` - □□□□
- `/crm/provision/*` - □□□□
- `/crm/transaction/*` - □□□□
- `/crm/invoice/*` - □□□□

# 3. □□□□




# 4. □□□□□

## OCS/CGRateS □□

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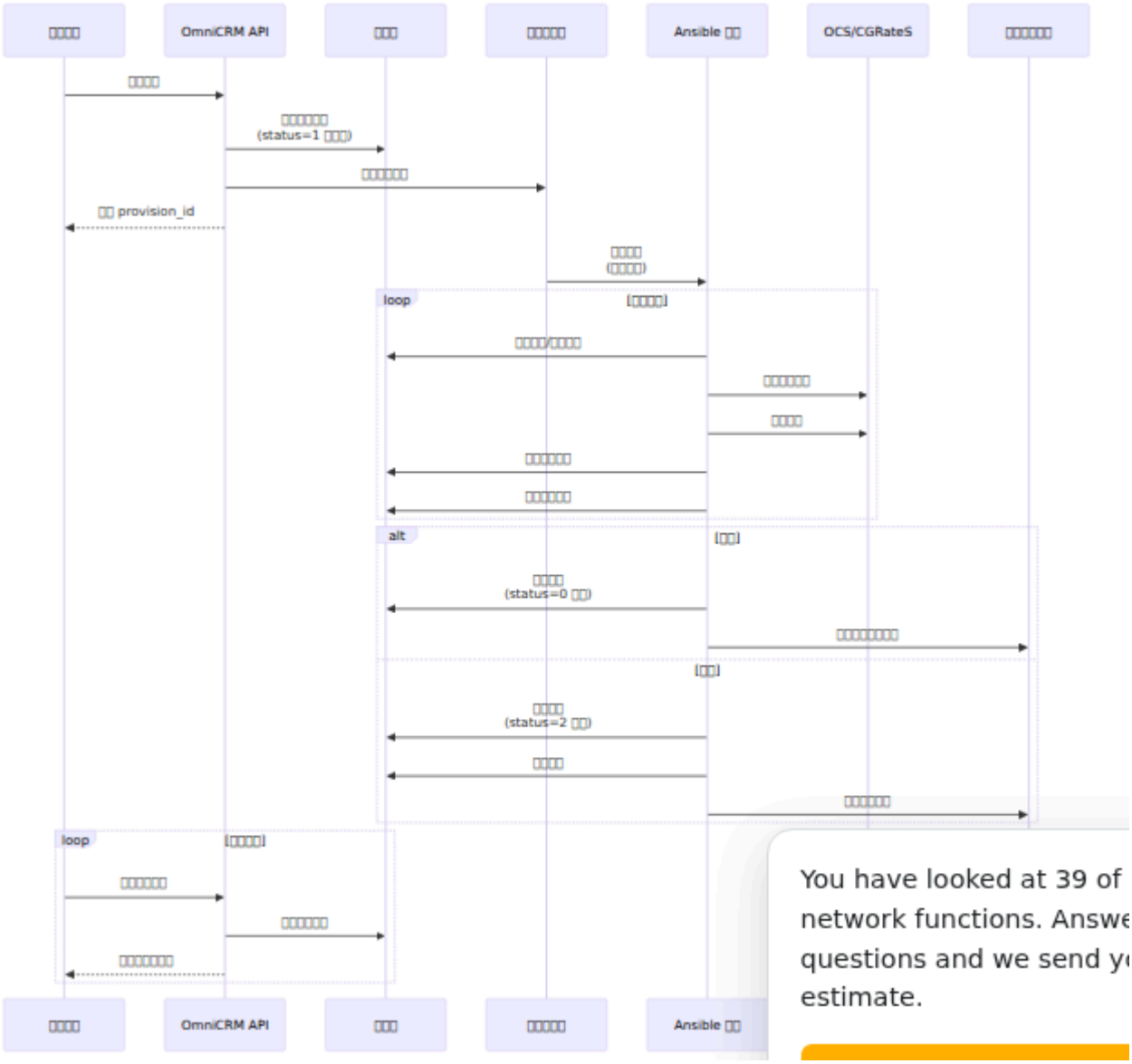
OmniCRM API
Ansible
OCS/CGRateS
loop
alt
loop
OmniCRM API
Ansible
You have looked at 39 of
network functions. Answe
questions and we send y
estimate.

# 5. □□□□

OmniCRM □□□□

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|---|---|---|
| customer_id | □□ (PK) | □□□□□ |
| customer_name | □□□ | □□□□□□□ |
| customer_account_type | □□ | '□□' □ '□□' |
| customer_status | □□ | '□□', '□□', '□□', '□□' |
| customer_payment_type | □□□ | '□□' □ '□□' |
| customer_enabled | □□ | □□□□□□ |
| tax_identifier | □□□ | □□□/□□□□□□□□ |
| contract_start_date | □□□□ | □□□□ |
| contract_end_date | □□□□ | □□□□ |

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|---|---|---|
| contact_id | □□ (PK) | □□□□□ |
| customer_id | □□ (FK) | □□□ |
| contact_firstname | □□□ | □□ |
| contact_lastname | □□□ | □□ |
| contact_email | □□□ | □□□□□□ |
| contact_phone | □□□ | □□□□ |
| contact_types | □□□ | '□□', '□□', '□□' |

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|---|---|---|
| site_id | □□ (PK) | □□□□□ |
| customer_id | □□ (FK) | □□□ |
| site_name | □□□ | □□□□ |
| address_line_1 | □□□ | □□□□ |
| city, state, zip_code | □□□ | □□□□ |
| latitude, longitude | □□ | GPS □□ |
| google_maps_place_id | □□□ | Google Maps □□ |
| plus_code | □□□ | □□□□□□ |

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|---|---|---|
| service_id | □□ (PK) | □□□□□□ |
| customer_id | □□ (FK) | □□□ |
| product_id | □□ (FK) | □□□□ |
| site_id | □□ (FK) | □□□□ |
| service_name | □□□ | □□□□ |
| service_uuid | □□□□ | □□□□□□□ |
| service_status | □□ | □□□□ |
| service_billed | □□ | □□□□ |
| wholesale_cost | □□ | □□□□□ |
| retail_cost | □□ | □□□□ |
| bundled_parent | □□ (FK) | □□□□□□□□ |

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| product_id | □□ (PK) | □□□□□ |
| product_name | □□□ | □□□□ |
| product_slug | □□□ | URL □□□□ |
| category | □□ | '□□', '□□', '□□', '□□' |
| provisioning_play | □□□ | Ansible □□□□ |
| provisioning_json_vars | JSON | □□□□ |
| inventory_items_list | □□□ | □□□□ |
| retail_cost | □□ | □□ |
| retail_setup_cost | □□ | □□□□□ |
| enabled | □□ | □□□□ |

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| transaction_id | □□ (PK) | □□□□□ |
| customer_id | □□ (FK) | □□□ |
| invoice_id | □□ (FK) | □□□□□□□ |
| service_id | □□ (FK) | □□□□ |
| title | □□□ | □□□□ |
| retail_cost | □□ | □□□□□ = □□/□□□ |
| payment_type | □□□ | □□ `wallet_topup_card`, `wallet_invoice`, `postpaid_deferred_charge` |
| wallet_ledger_id | □□ (FK) | □□□□□□□□□□□□□□ wallet_ledger |
| void | □□ | □□□□□ |

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|---|---|---|
| invoice_id | □□ (PK) | □□□□□ |
| customer_id | □□ (FK) | □□□ |
| paid | □□ | □□□□□ |
| void | □□ | □□□□□ |
| payment_reference | □□□ | Stripe □□ ID |
| start_date, end_date | □□ | □□□□ |
| due_date | □□ | □□□□□□ |
| retail_cost | □□ | □□□ |

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| inventory_id | □□ (PK) | □□□□□ |
| customer_id | □□ (FK) | □□□□ |
| service_id | □□ (FK) | □□□□ |
| inventory_template_id | □□ (FK) | □□□□□□ |
| item | □□□ | □□□□□SIM □□□□□□□ |
| item_state | □□ | '□', '□□□', '□□□' □ |
| itemtext1-20 | □□□ | □□□□ |
| management_url | □□□ | □□□□ URL |
| config_content | □□ | □□□□ |

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| inventory_template_id | □□ (PK) | □□□□□ |
| item | □□□ | □□□□ |
| itemtext1_label | □□□ | itemtext1 □□□□□ |
| itemtext2_label | □□□ | itemtext2 □□□□□ |

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| provision_id | □□ (PK) | □□□□□ |
| product_id | □□ (FK) | □□□□□□□ |
| customer_id | □□ (FK) | □□□□ |
| service_id | □□ (FK) | □□/□□□□□ |
| provisioning_play | □□□ | Ansible □□□□ |
| provisioning_status | □□ | 0=□□, 1=□□□, 2=□□ |

**Provision_Event** - □□□□□□□

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| provision_event_id | □□ (PK) | □□□□□ |
| provision_id | □□ (FK) | □□□□□ |
| event_name | □□□ | □□□□ |
| event_number | □□ | □□□ |
| provisioning_status | □□ | 0=□□, 1=□□□, 2=□□ |
| provisioning_result_json | JSON | □□□□□□ |

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|---|---|---|
| id | □□ (PK) | □□□□□ |
| username | □□□ | □□□□□ |
| email | □□□ | □□□□□□ |
| email_verified | □□ | □□□□□□□ |
| is_2fa_enabled | □□ | □□□□□□□ |
| totp_secret | □□□ | TOTP □□ |

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| name | □□□ | □□□□ |
| description | □□□ | □□□□ |

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| name | □□□ | □□□□ (resource.action) |
| description | □□□ | □□□□ |

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## OCS/CGRateS

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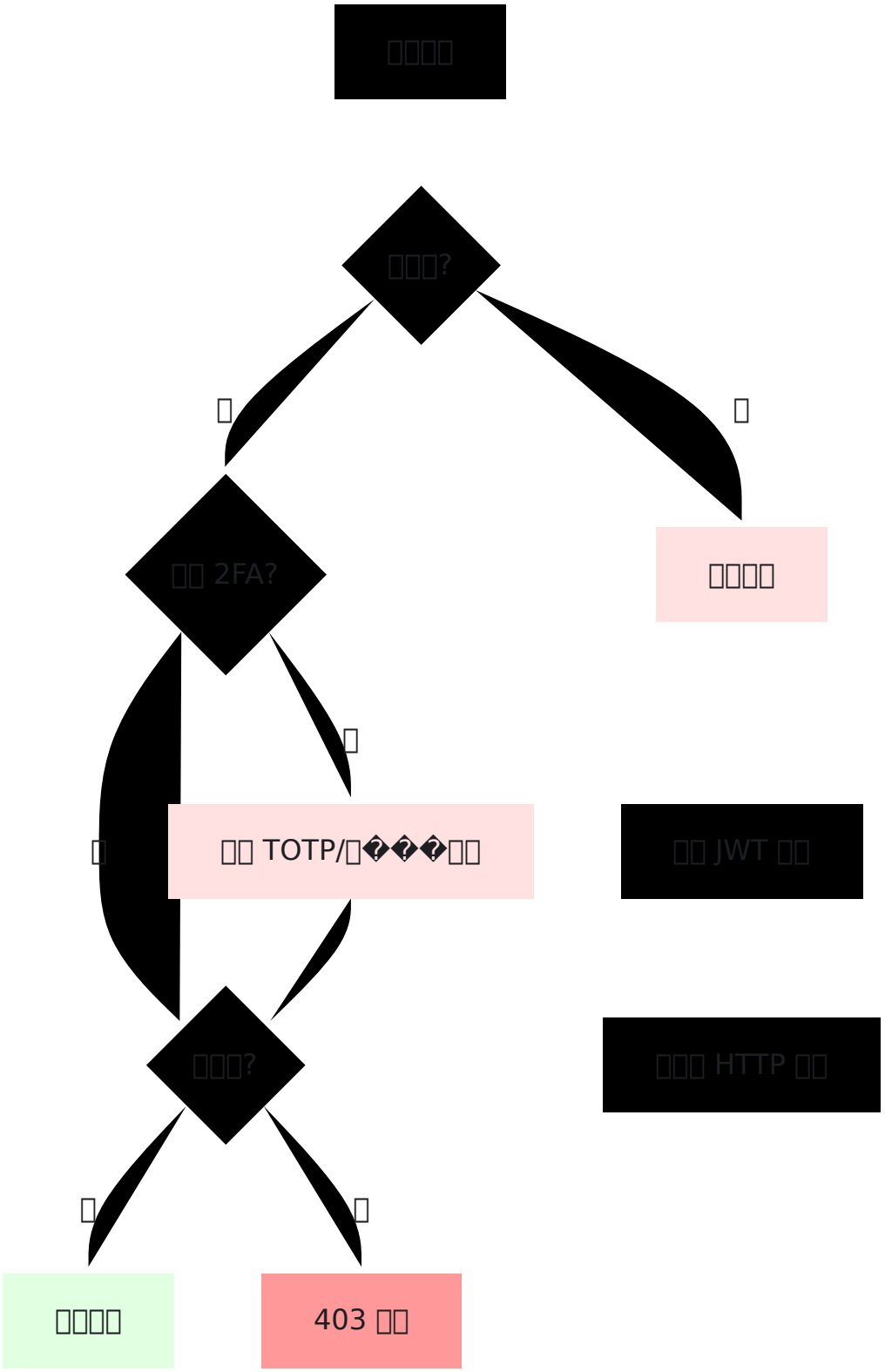
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□□ 2FA?
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□□ TOTP/□□□□
□□ JWT □□
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403 □□

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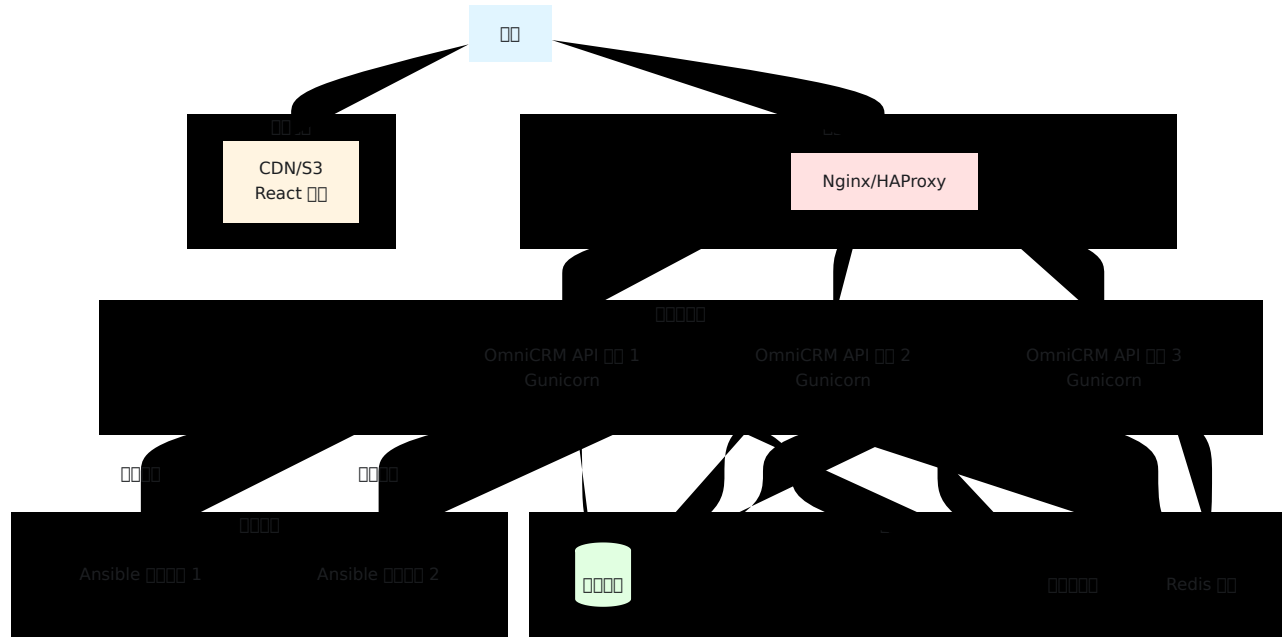


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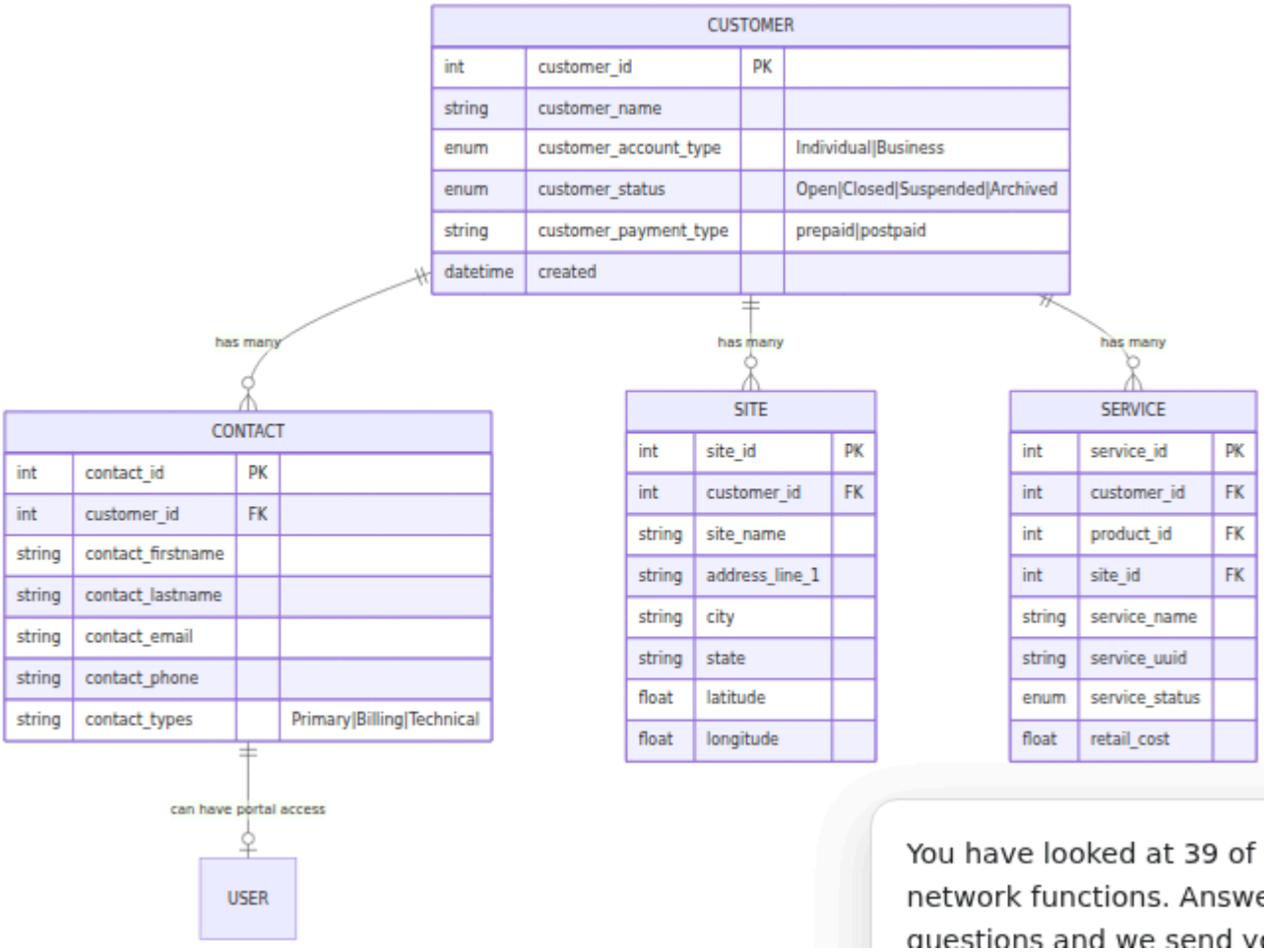
CUSTOMER
int customer_id PK
string customer_name
enum customer_account_type Individual|Business
enum customer_status Open|Closed|Suspended|Archived
string customer_payment_type prepaid|postpaid
datetime created
has many
has many
has many
CONTACT
int contact_id PK
int customer_id FK
string contact_firstname
string contact_lastname
string contact_email
string contact_phone
string contact_types Primary|Billing|Technical
SITE
int site_id PK
int customer_id FK
string site_name
string address_line_1
string city
string state
float latitude
float longitude
SERVICE
int service_id PK
int customer_id FK
int product_id FK
int site_id FK
string service_name
string service_uuid
enum service_status
float retail_cost
can have portal access
USER
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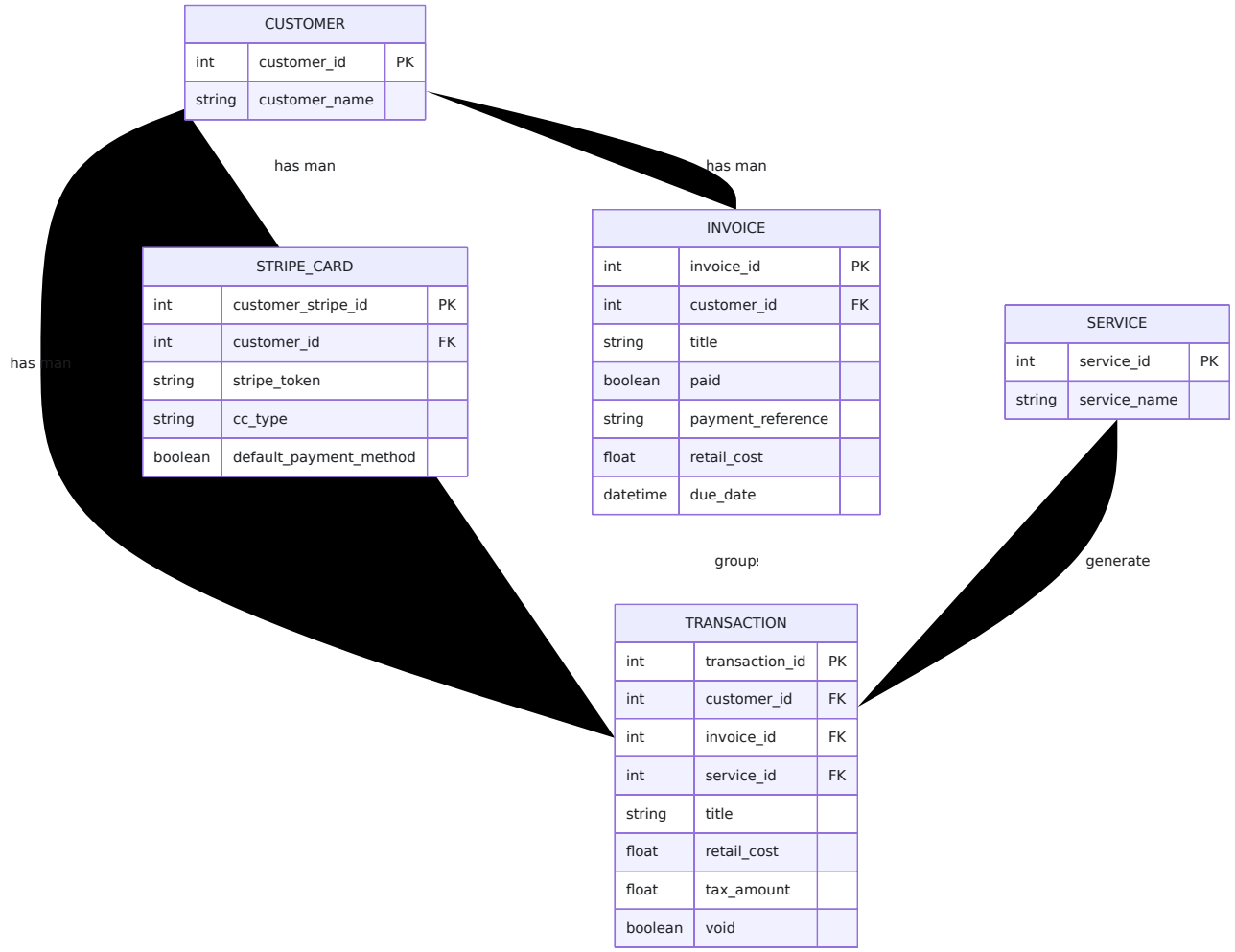
CUSTOMER
int customer_id PK
string customer_name
has man
has man
has man
STRIPE_CARD
int customer_stripe_id PK
int customer_id FK
string stripe_token
string cc_type
boolean default_payment_method
INVOICE
int invoice_id PK
int customer_id FK
string title
boolean paid
string payment_reference
float retail_cost
datetime due_date
SERVICE
int service_id PK
string service_name
group
generate
TRANSACTION
int transaction_id PK
int customer_id FK
int invoice_id FK
int service_id FK
string title
float retail_cost
float tax_amount
boolean void

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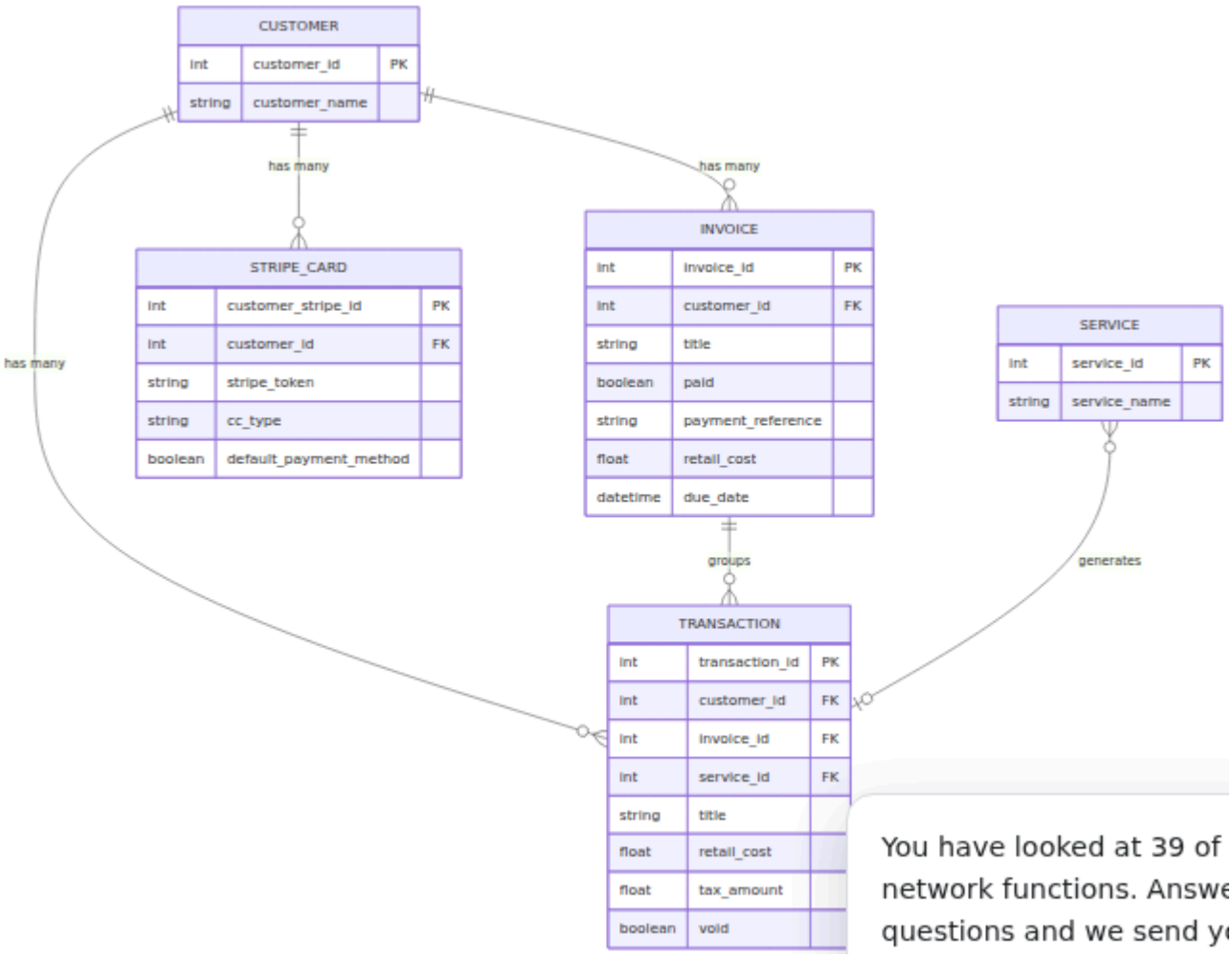
CUSTOMER
int customer_id PK
string customer_name
has many
has many
has many
STRIPE_CARD
int customer_stripe_id PK
int customer_id FK
string stripe_token
string cc_type
boolean default_payment_method
INVOICE
int invoice_id PK
int customer_id FK
string title
boolean paid
string payment_reference
float retail_cost
datetime due_date
SERVICE
int service_id PK
string service_name
groups
generates
TRANSACTION
int transaction_id PK
int customer_id FK
int invoice_id FK
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string title
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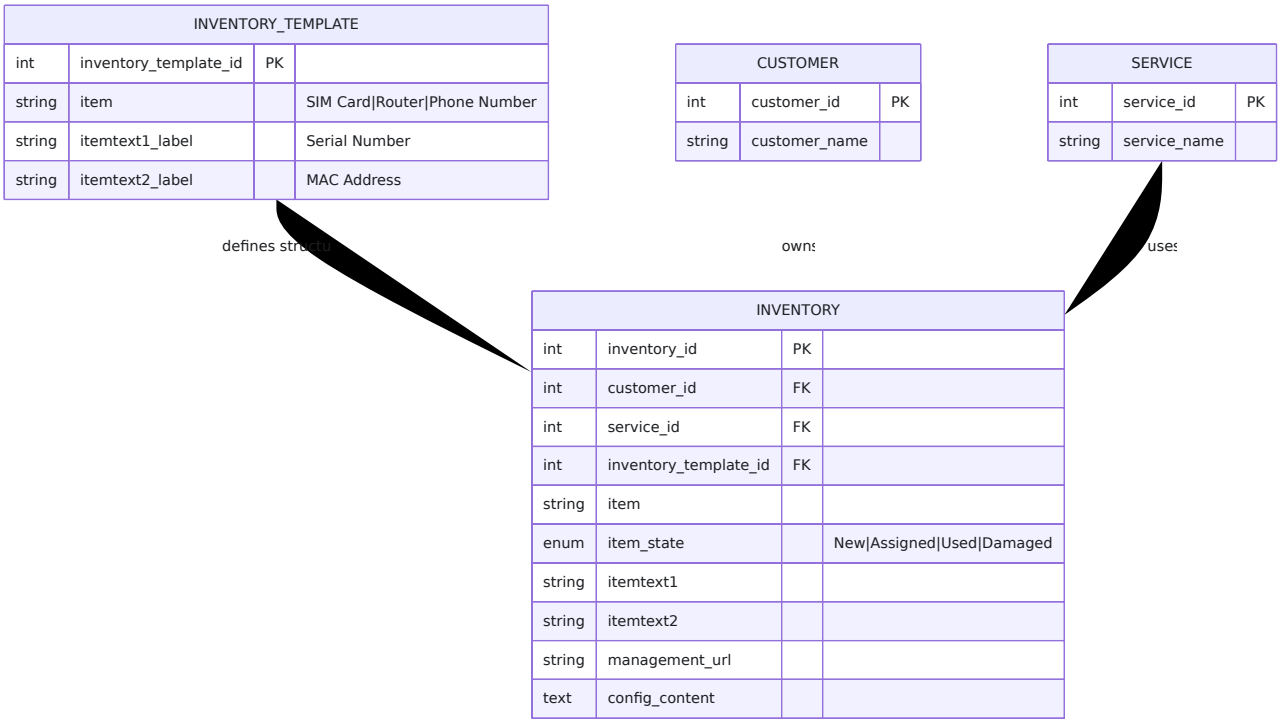


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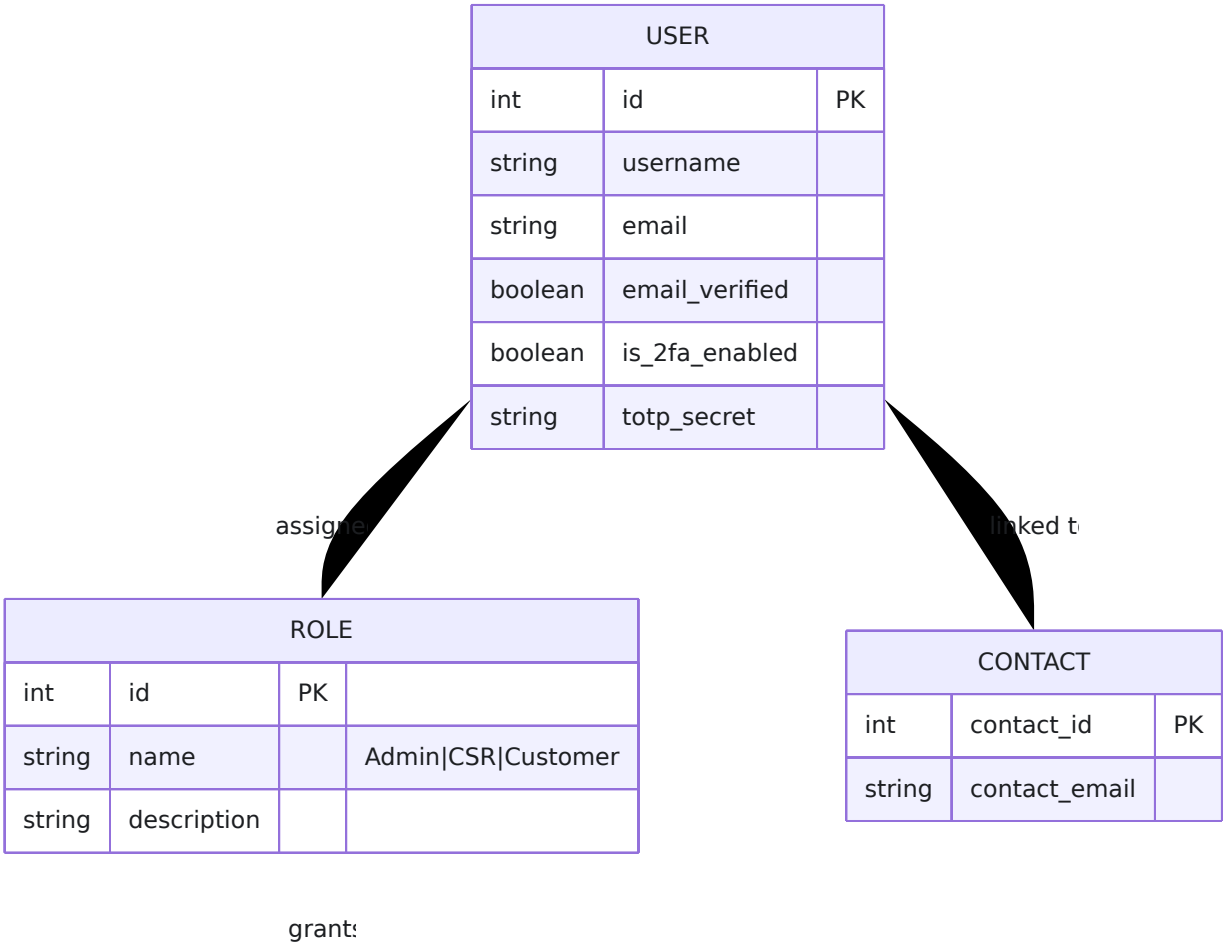
USER
int id PK
string username
string email
boolean email_verified
boolean is_2fa_enabled
string totp_secret
assigne
linked t
ROLE
int id PK
string name Admin|CSR|Customer
string description
CONTACT
int contact_id PK
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string name customer.read|service.create
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> □□□SELECT * FROM Customer_Site
> WHERE distance(latitude, longitude, 51.5074, -0.1278) < 5
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- `payments_invoices` - □□□□□□□□
- `payments_process` - □□□□□□□□□
- `basics_payment` - □□□□□□□
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□□□□□□□□ `OmniCRM-API/invoice_templates/`

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- `sample_invoice_template.html` - □□□□□□□
- `cifi_invoice_template.html` - □□□□□□□

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□□□□□□□□ `OmniCRM-API/crm_config.yaml` □□□□

```yaml
invoice:
  template_filename: 'sample_invoice_template.html'
```

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- `{{ invoice_number }}` - □□□□ID□□□□`INV-2025-001234`□
- `{{ date }}` - □□□□□□□□ISO□□□`2025-01-10T12:00:00`□
- `{{ due_date }}` - □□□□□□□□□□□`2025-02-10`□
- `{{ start_date }}` - □□□□□□□□□
- `{{ end_date }}` - □□□□□□□□□
- `{{ total_amount }}` - □□□□□□□□□□□□□□□
- `{{ total_tax }}` - □□□□□□□□□□□□□□□□□

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- `{{ client.name }}` - □□□□□□□□□□□

- `{{ client.address.address_line_1 }}` - □□□1
- `{{ client.address.address_line_2 }}` - □□□2
- `{{ client.address.city }}` - □□
- `{{ client.address.state }}` - □/□
- `{{ client.address.zip_code }}` - □□□□
- `{{ client.address.country }}` - □□

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```
{% for sub_transaction in transactions %}
    <tr>
        <td>{{ sub_transaction.transaction_id }}</td>
        <td>{{ sub_transaction.created.split("T")[0] }}</td>
        <td>{{ sub_transaction.title }}</td>
        <td>{{ sub_transaction.description }}</td>
        <td>${{ "%.2f"|format(sub_transaction.retail_cost) }}</td>
    </tr>
{% endfor %}
```

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- `sub_transaction.transaction_id` - □□ID
- `sub_transaction.created` - □□□□/□□
- `sub_transaction.title` - □□□□
- `sub_transaction.description` - □□□□
- `sub_transaction.retail_cost` - □□□□□
- `sub_transaction.tax_percentage` - □□□□□□□□□□10□□10%□
- `sub_transaction.tax_amount` - □□□□□□□□

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```
<td>
    {% if sub_transaction.tax_amount and
sub_transaction.tax_amount > 0 %}
        ${{ "%.2f"|format(sub_transaction.tax_amount) }} ({{
sub_transaction.tax_percentage }}%)
    {% else %}
        -
    {% endif %}
</td>
```

# □□□□□□□□□

**□□1□□□□□□□**

```
cd OmniCRM-API/invoice_templates/
cp sample_invoice_template.html your_company_invoice_template.html
```

**□□2□□□□HTML/CSS**

□□ `your_company_invoice_template.html` □□□□□□□□

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1. □□□□□□□

   ```
   <!-- □□□□□URL□□ -->
   ![□□□□](https://yourcompany.com/logo.png)

   <!-- □□□□□□ -->
   <h1>□□□□□□</h1>
   ```

2. □□□□

```
<style>
    /* □□□□□□ */
    .navbar {
        background: linear-gradient(to bottom right, #your-
color-1, #your-color-2);
    }

    /* □□ */
    .table thead th {
        background-color: #your-brand-color !important;
        color: white !important;
    }

    /* □□□□□ */
    .btn-primary {
        background-color: #your-brand-color;
    }
</style>
```

3. □□□□□□

```
<footer>
    <p>□□□□□□</p>
    <p>123□□□□□□□□□</p>
    <p>□□□+1-555-123-4567 | □□□billing@yourcompany.com</p>
    <p>ABN/□□□12345678900</p>
</footer>
```

4. □□□□

```
<div class="payment-info">
    <h3>□□□□</h3>
    <p><strong>□□□</strong> □ https://yourcompany.com/pay □□
</p>
    <p><strong>□□□□□</strong></p>
    <ul>
        <li>□□□□□□□□□□□□□□□</li>
        <li>BSB□123-456</li>
        <li>□□□□□987654321</li>
        <li>□□□{{ invoice_number }}</li>
    </ul>
</div>
```

5. □□□□□

```
<div class="terms">
    <h4>□□□□</h4>
    <p>□□□□□30□□□□□□□□</p>
    <p>□□□□□□□□□□□□□□□2%□</p>
    <p>□□□□□□□□billing@yourcompany.com</p>
</div>
```

**□□3□□□□□**

□□ `OmniCRM-API/crm_config.yaml`□

```
invoice:
  template_filename: 'your_company_invoice_template.html'
```

**□□4□□□API**

```
cd OmniCRM-API
sudo systemctl restart omnicrm-api
```

**□□5□□□□□□□**

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```
{% if total_amount > 1000 %}
    <div class="high-value-notice">
        <p><strong>□□□</strong> □□□□ - □□□□□□□□□□□□□</p>
    </div>
{% endif %}

{% if client.address.country == "Australia" %}
    <p>□□GST□${{ "%.2f"|format(total_amount * 0.10) }}</p>
{% endif %}
```

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```
invoice_template_en.html
invoice_template_es.html
invoice_template_fr.html
```

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```
<!-- □□□□□□□□□□ -->
<tr>
    <td colspan="4" class="text-right"><strong>□□□</strong></td>
    <td>${{ "%.2f"|format(total_amount) }}</td>
</tr>
<tr>
    <td colspan="4" class="text-right"><strong>□□</strong></td>
    <td>${{ "%.2f"|format(total_tax) }}</td>
</tr>
<tr>
    <td colspan="4" class="text-right"><strong>□□□</strong></td>
    <td>${{ "%.2f"|format(total_amount + total_tax) }}</td>
</tr>
```

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```
<div class="qr-payment">
    ![□□□□](https://api.qrserver.com/v1/create-qr-code/?
size=150x150&data={{ payment_url }})
    <p>□□□□□□□□□□□</p>
</div>
```

## PDF □□□□□□

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```
@page {
    size: A4;
    margin: 1cm;
}

body {
    font-family: Arial, sans-serif;
    font-size: 10pt;
}
```

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```
@media print {
    .no-print {
        display: none;
    }

    .page-break {
        page-break-after: always;
    }
}
```

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```
.table {
    table-layout: fixed;
    width: 100%;
}

.table th, .table td {
    word-wrap: break-word;
    padding: 4px;
}
```

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```
@font-face {
    font-family: 'YourFont';
    src: url('https://yourcompany.com/fonts/yourfont.woff2')
format('woff2');
}

body {
    font-family: 'YourFont', Arial, sans-serif;
}
```

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```
curl -X GET "http://localhost:5000/crm/invoice/{invoice_id}/pdf" \
     -H "Authorization: Bearer YOUR_TOKEN" \
     --output test_invoice.pdf
```

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DELETE FROM Invoice_PDF_Cache;
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```
{
  "vendor": "stripe",
  "vendor_payment_method_id": "pm_1A2B3C4D5E6F",
  "payment_type": "card",
  "brand": "visa",
  "last4": "1234",
  "exp_month": 12,
  "exp_year": 2026,
  "name": "John Smith",
  "nickname": "Personal Card",
  "is_default": true
}
```

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- `basics_payment` - □□□□□□□□□□□□□□
- `payment_system_guide` - □□ API □□□□□□□□
- `payments_transaction` - □□□□□□
- `payments_invoices` - □□□□□□
- `integrations_mailjet` - □□□□□□□□
- `csa_activity_log` - □□□□□□□□
- □□□□□ - OCS/CGRateS □□□□□□□□

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`customer_transaction` □□ CRM □□□ / GL □□□□□□`wallet_ledger` □□□□□□□□□□□□□□ □□□□□ □ □□□□□ / □□□□□□□API □□□□□□□□□□ `customer_transaction`□□ **retail_cost** □ □□□□□□□□□`payment_type` □□□□

- `wallet_topup_card`: □□□□□□□□□□ (`POST /crm/wallet/topup`)
- `wallet_topup_cash`: □□□□ (`POST /crm/wallet/credit`□□□□□ / □□)
- `wallet_adjustment_debit`: □□□□□□□ (`POST /crm/wallet/debit`) □□□□ □□ □ □□□□□□

□□□□□ `wallet_ledger_id`□□□□□□ `wallet_ledger` □□□□□□□

# □□□□ GAAP

□□□□□□□□□ **`retail_cost`** □□□□ □□ □□□□□□□□□□□□□□□ / □□□□□□□□ □□□□ □□ □□□□ □□□□□□□□□□□□□□□□□□ **CRM** □□□□□□□□ GAAP □□□□□□□

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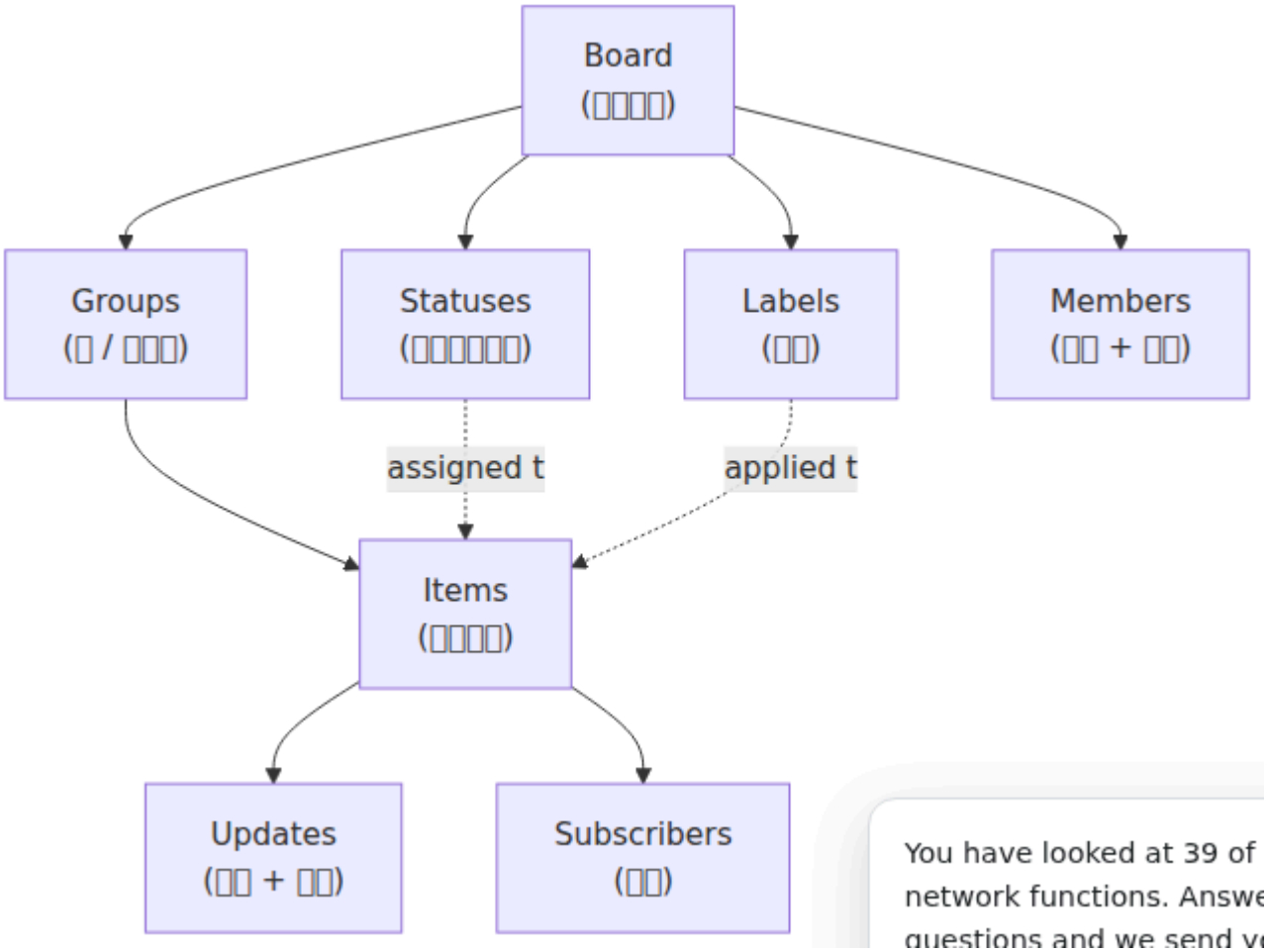
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```
{PREFIX}-{BOARD}-{SEQUENCE}
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| `PREFIX` | □□□□□□□□□□□□ `BRD`□□□□□□□□□□□□ 10 □□□□□□□ `INST` □□□□□□□□□ |
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| `SEQUENCE` | □□□□□□□□□□□□□□□□□□□□ |

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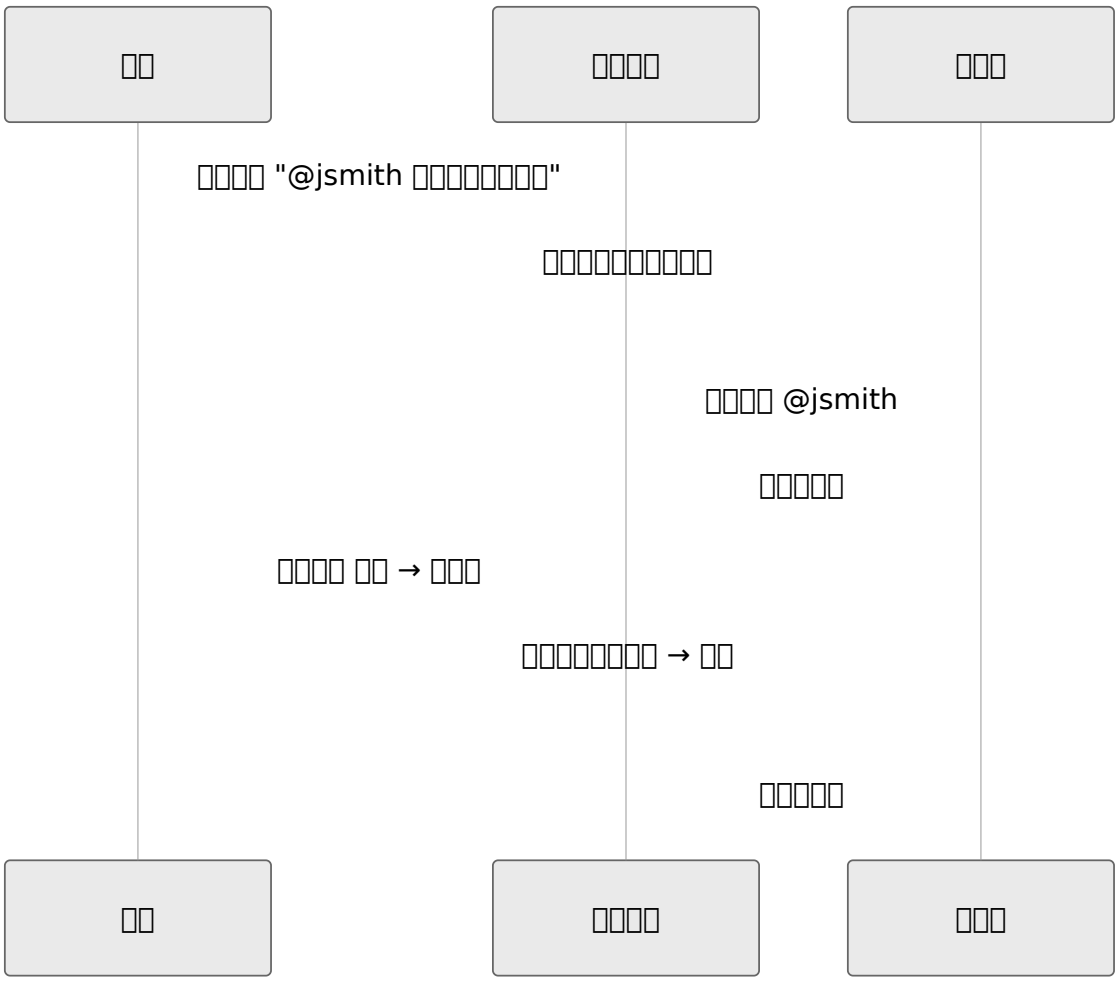
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| `VIEW_BOARD` | □□□□□□□ |
| `CREATE_BOARD` | □□□□□ |
| `UPDATE_BOARD` | □□□□□□□□□□□□ |
| `DELETE_BOARD` | □□□□ |
| `MANAGE_BOARD_SETTINGS` | □□□□□□□□□□□□□ |
| `MANAGE_BOARD_MEMBERS` | □□□□□□□□□□□□ |
| `GENERATE_PUBLIC_TOKEN` | □□□□□□□□ |
| `VIEW_BOARD_ITEM` | □□□□□□□□□□□ |
| `CREATE_BOARD_ITEM` | □□□□ |
| `UPDATE_BOARD_ITEM` | □□□□□□□□□□□□□□ |
| `DELETE_BOARD_ITEM` | □□□□ |

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# CGRateS □□□□□□□

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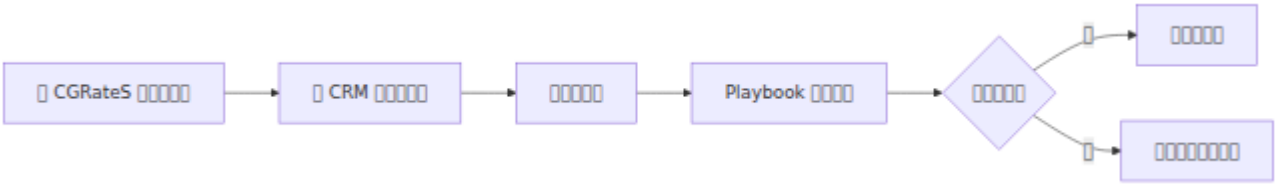


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- **CGRateS** □□□ `ActionsId = "Action_50gb-data-pack"`
- **CRM** □□□ `product_slug = "50gb-data-pack"`
- □ **Playbook** □□ `cgr_action_name = "Action_" + product_slug`

□ Playbook □□□□□□ product_slug □□□□□□□□□ `ExecuteAction`□□□□□□□ CGRateS □ □□□□□□□□□□

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```
import cgrateshttpapi

OCS_Obj = cgrateshttpapi.CGRateS("ocs.example.com", "2080")
tenant = "your_tenant"

# □□ 1□□□□ CGRateS □□□□□
Action_50GB_Data_Pack = {
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_50gb-data-pack",
        "Tenant": tenant,
        "Actions": [
            {
                "Identifier": "*topup",
                "BalanceType": "*data",
                "Units": 50 * 1024 * 1024 * 1024,
                "ExpiryTime": "+720h",
                "Weight": 10
            }
        ]
    }]
}

result = OCS_Obj.SendData(Action_50GB_Data_Pack)
assert result['error'] is None or result['error'] == "EXISTS"

# □□ 2□□□□ CRM □□□□□
# (product_slug = "50gb-data-pack" □□□□ Action_50gb-data-pack)
```

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```
# □ Playbook □
- name: □□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body:
      {
        "method": "APIerSv1.ExecuteAction",
        "params": [{
          "ActionsId": "Action_50gb-data-pack"
        }]
      }
  register: response

# □□□□□□□□□□□□
# response.json.error = "SERVER_ERROR: □□□□□"
# □□□□□□□□□□□□□
```

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```
# □□□□□□□□□□□□
□□ 1:
  ID: "Data_5GB_5days_uuid_abc123"
  □□: *data
  □: 5368709120  # 5GB □□□□□□□
  □□: 2024-12-29
  □□: 10

□□ 2:
  ID: "Data_10GB_30days_uuid_def456"
  □□: *data
  □: 10737418240  # 10GB □□□□□□□
  □□: 2025-01-24
  □□: 10

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# □□□□□*topup □ *topup_reset

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## *topup - □□□□

`*topup` □□ □□□□□□□□□□□□□□□□ ID□□ □□□□□□□□

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```
# □□□□□□
□□□
  ID: "Data_Package__5368709120"
  □: 1073741824  # □□ 1GB
  □□: 2024-12-24 (□□ 1 □)

# □□ *topup □□□
□□□
  □□□: "*topup"
  □□□
    ID: "Data_Package__5368709120"  # □□ ID - □□□□
    □: 5368709120  # 5GB
    ExpiryTime: "+5d"

# *topup □□□□□□
□□□
  ID: "Data_Package__5368709120"
  □: 6442450944  # 6GB (1GB + 5GB □□)
  OriginalValue: 5368709120  # □□□□□□ 5GB
  Value_hr: "6 GB"
  OriginalValue_hr: "5 GB"
  Remaining_hr: "6 GB of 5 GB (1 GB □□)"
  □□: 2024-12-29 (□□□□ 5 □)
```

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## *topup_reset - □□□□

`*topup_reset` □□ □□□□□□□□□□□□□□□□ ID□

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  ID: "Data_Package__5368709120"
  □: 1073741824  # □□ 1GB
  □□: 2024-12-24 (□□ 1 □)

# □□ *topup_reset □□□
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  □□□: "*topup_reset"
  □□□
    ID: "Data_Package__5368709120"  # □□ ID - □□□□
    □: 5368709120  # 5GB
    ExpiryTime: "+5d"

# *topup_reset □□□□□
□□□
  ID: "Data_Package__5368709120"
  □: 5368709120  # 5GB (□□ 1GB □□□)
  OriginalValue: 5368709120
  Value_hr: "5 GB"
  Remaining_hr: "5 GB of 5 GB"
  PercentUsed: 0
  □□: 2024-12-29 (□□□□ 5 □)
```

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{DescriptiveName}__{OriginalSizeInBaseUnits}
```

### □□□□ ID□

```
# □□□□□□100GB
"AU_Data_Domestic__107374182400"
# □□□□□
# - □□□□□□"AU_Data_Domestic"□□□□□□ - □□/□□□□
# - □□□□□"__"□□□□□□□
# - □□□□□□"107374182400"□100GB □□□□□□□□
# - UI □□□"AU Data Domestic - 100 GB"

# □□□□□□3000□□
"AU_Voice_Domestic__180000000000000"
# - □□□□□□"AU_Voice_Domestic"□□□□□ "AU_Voice_Domestic_3000min"□
# - □□□□□□"180000000000000"□3000□□□□□□□□□□
# - UI □□□"AU Voice Domestic - 3000 min"

# □□□□□□3000□□□
"AU_SMS_Domestic__3000"
# - □□□□□□"AU_SMS_Domestic"
# - □□□□□□"3000"□□□□□
# - UI □□□"AU SMS Domestic - 3000 msgs"
```

□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `__` □□□□□□API □□□□□□□□□□□□□□□□□□

**API** □□□□□□□□□□□□

□ OmniCRM API □ CGRateS □□□□□□□□□□□□□□□□□ ID □□□ `_hr`□□□□□□□□□□

```
{
  "BalanceMap": {
    "*data": [
      {
        "ID": "AU_Data_Domestic__107374182400",
        "Value": 53687091200,
        "ExpiryTime": "2025-01-25T23:59:59Z",
        "Weight": 1200,

        // ��□□□□□□□□□□□□
        "ID_hr": "AU Data Domestic",
        "OriginalValue": 107374182400,
        "OriginalValue_hr": "100 GB",
        "Value_hr": "50 GB",
        "Remaining_hr": "50 GB of 100 GB",
        "PercentUsed": 50,
        "ExpiryTime_hr": "2025□1□25□□22□□"
      }
    ]
  }
}
```

**API □□□□□**

1. □□□□ **ID**□

   ```
   balance_id = "AU_Data_Domestic__107374182400"
   parts = balance_id.split("__")

   descriptive_name = parts[0]  # "AU_Data_Domestic"
   original_size = int(parts[1]) if len(parts) > 1 else None  # 107374182400
   ```

2. □□□□□□□□□□□□

```
# □□□□□□□□□
id_hr = descriptive_name.replace("_", " ")  # "AU Data
Domestic"
```

3. □□□□□□□□□□□□□□□

```
# □□□□□□□□□□□
if balance_type == "*data":
    original_value_hr = convert_bytes_to_gb(original_size)  #
"100 GB"

# □□□□□□□□□□□
elif balance_type == "*voice":
    original_value_hr = convert_ns_to_minutes(original_size)  #
"3000 min"

# □□□□□□□□□□□
elif balance_type == "*sms":
    original_value_hr = f"{original_size} msgs"  # "3000 msgs"
```

4. ���□□□□□□□

```
if original_size and original_size > 0:
    percent_used = ((original_size - current_value) /
original_size) * 100
```

5. □□□□□□□□□

```
remaining_hr = f"{current_value_hr} of {original_value_hr}"
# "50 GB of 100 GB"
```

**Web UI □□□**

□□□□□□□ `_hr` □□□□□□□□□□□□□□□□

```
// □□□□□□□□□□
// ID: "AU_Data_Domestic__107374182400"
// □: 53687091200

// □□□□□□□□
<BalanceCard>
  <Title>{balance.ID_hr}</Title>           {/* "AU Data Domestic"
*/}
  <Progress value={balance.PercentUsed}>   {/* 50% */}
    {balance.Remaining_hr}                 {/* "50 GB of 100 GB"
*/}
  </Progress>
  <Expiry>{balance.ExpiryTime_hr}</Expiry> {/* "2025□1□25□□22□□"
*/}
</BalanceCard>
```

□□□□□□□□□

1. □□□□□□□ - □□□□□□□□□□UI □□□□□□□ "50 GB of 100 GB" □□□□□□ "50 GB □□"
2. □□□□□□ - □□□□□□□□□□□□□□□□□□□□
3. □□□□□□ - □□□□ ID □□□□□□□□□□□□□□□□□□□□□□□□□□□□
4. □□□□□ - □□□□ `*topup`□□□□□□□□□□□□□ 70 GB □□□□□□ 100 GB□
   - □□ ID □□□□□□"AU_Data_Domestic__107374182400"□□□ 100 GB□
   - □□□□□□□170 GB
   - UI □□□"170 GB (70 GB □□ + 100 GB □□)"

□□□□ **-** □□□□ **ID**□

□□□ `__` □□□□□□□□□□□□□□□□ UI □□□□□□□□□□□□□□□□□□□□□□

```
# □ - □□□□□ + □□□□□□□□□□
Action_Data_100GB = {
    "Actions": [
        {
            "BalanceId": f"AU_Data_Domestic__{100 * 1024 * 1024 *
1024}",
            "Units": 100 * 1024 * 1024 * 1024
        }
    ]
}

# □ - □□□□□□□□□□□
Action_Data_100GB = {
    "Actions": [
        {
            "BalanceId": f"AU_Data_Domestic_100GB__{100 * 1024 *
1024 * 1024}",  # □□□
            "Units": 100 * 1024 * 1024 * 1024
        }
    ]
}

# □ - □□□□□□□□UI □□□□□□□□□
Action_Data_100GB = {
    "Actions": [
        {
            "BalanceId": "AU_Data_Domestic",  # □□ __size
            "Units": 100 * 1024 * 1024 * 1024
        }
    ]
}
```

**□□□□ - □□□□□**

□□□□□□□□□□

```
# □□□□□□□□□□□□□
{
    "BalanceId": "PAYG_Monetary_Balance",
    "BalanceType": "*monetary",
    "Units": 5000  # $50.00
}

# UI □□□□□□□□□□□□□□□
# "□□□$50.00"
```

## □□ 1□□□ ID□□□□□□

□□□□ ID□□□□□□□ UUID□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□

```
- name: □□□□□□□□□□
  set_fact:
    uuid: "{{ 99999999 | random | to_uuid }}"
    balance_id: "Data_5days__5368709120_{{ uuid[0:8] }}"

- name: □□ *topup □□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "{{ balance_id }}",
            "Value": 5368709120,
            "ExpiryTime": "+5d",
            "Weight": 10
          }
        }]
      }
```

□□□ □□□□□□□□□□

```
# □□□□□□□□“5□□□□□□□□”□
□□ 1:
  ID: "Data_5days__5368709120_a1b2c3d4"
  □: 5368709120
  Value_hr: "5 GB"
  OriginalValue_hr: "5 GB"
  Remaining_hr: "5 GB of 5 GB"
  □□: 2024-12-29

□□ 2:
  ID: "Data_5days__5368709120_e5f6g7h8"
  □: 5368709120
  Value_hr: "5 GB"
  Remaining_hr: "5 GB of 5 GB"
  □□: 2024-12-30

□□ 3:
  ID: "Data_5days__5368709120_i9j0k1l2"
  □: 5368709120
  Value_hr: "5 GB"
  Remaining_hr: "5 GB of 5 GB"
  □□: 2024-12-31

# □□□□15GB□□□□□□□□□
# □□□ UI □□□□□□□ "Data 5days - 5 GB of 5 GB"
```

## □□ 2□□□ *topup □□□ ID□□□□

□□□□□□□ ID □ `*topup` □□□□□□□□□□□□□□□□

□□□□□

```
- name: □□□□□□□ ID
  set_fact:
    balance_id: "Data_5days__5368709120"

- name: □□ *topup □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "Data_5days__5368709120",
            "Value": 5368709120,
            "ExpiryTime": "+5d",
            "Weight": 10
          }
        }]
      }
```

□□□ □□□□□□□□□□□□□□□□□

```
# □ 1 □□□□□□□“5□□□□□□□”□
□□□
  ID: "Data_5days__5368709120"
  □: 5368709120
  Value_hr: "5 GB"
  Remaining_hr: "5 GB of 5 GB"
  PercentUsed: 0
  □□: 2024-12-29

# □ 3 □□□□□□□□ 1GB□□□□□□□□□□□□□□□□□
□□□
  ID: "Data_5days__5368709120"
  □: 9663676416  # □□ 4GB + 5GB □□
  Value_hr: "9 GB"
  OriginalValue_hr: "5 GB"
  Remaining_hr: "9 GB (4 GB □□ + 5 GB □□)"
  PercentUsed: -80  # □□□□□□
  □□: 2024-12-27□□□□□□□□□ 5 □□
```

## □□ 3□□□ *topup_reset □□□ ID□□□□□□

□□□□□□□ ID □ `*topup_reset` □□□□□□□□□□□□□

□□□□□

```
- name: □□□□□□□ ID
  set_fact:
    balance_id: "Monthly_Plan__32212254720"

- name: □□ *topup_reset □□□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActions",
        "params": [{
          "ActionsId": "Action_Reset_Monthly_Plan",
          "Actions": [{
            "Identifier": "*topup_reset",
            "BalanceType": "*data",
            "Units": 32212254720,  # 30GB
            "ExpiryTime": "*monthly",
            "DestinationIds": "*any",
            "BalanceId": "Monthly_Plan__32212254720",
            "Weight": 10
          }]
        }]
      }
```

□□□ □□□□□□□□□□□□□ 30GB□□□□□□□□□□

```
# □ 1 □□□□ 1 □□
□□□
  ID: "Monthly_Plan__32212254720"
  □: 32212254720
  Value_hr: "30 GB"
  Remaining_hr: "30 GB of 30 GB"
  PercentUsed: 0
  □□: 2024-12-31

# □ 1 □□□□ 25 □□□□□□□□ 28GB
□□□
  ID: "Monthly_Plan__32212254720"
  □: 2147483648
  Value_hr: "2 GB"
  Remaining_hr: "2 GB of 30 GB"
  PercentUsed: 93
  □□: 2024-12-31

# □ 2 □□□□ 1 □□ActionPlan □□ *topup_reset
□□□
  ID: "Monthly_Plan__32212254720"
  □: 32212254720  # □□□□□□□□□□□ 2GB □□
  Value_hr: "30 GB"
  Remaining_hr: "30 GB of 30 GB"
  PercentUsed: 0
  □□: 2025-01-31
```

# □□□□□

□□□□□ □ CGRateS □□□□□□□□□□□□ □□□□□□□□□□□□

□□□□□

- □□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□CGRateS □□□□ □□□□□
- □□□□□□□□□□□□□□□□*voice□*data□*sms□*monetary

# □□□□□□□

**1.** □□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
Action_Suspend_Account = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_suspend-account",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            # □□□□□□□□□□□□□□□□□
            {
                "Identifier": "*topup",
                "BalanceId": "Suspension_Blocker",
                "BalanceType": "*monetary",
                "DestinationIDs": "*any",
                "Units": 0,  # □□
                "BalanceWeight": 9999,  # □□□□□□ - □□□□
                "Blocker": True,  # □□□□□□□
                "Weight": 10
            }
        ]
    }]
}

result = OCS_Obj.SendData(Action_Suspend_Account)
```

□□□ □□□□□/□□/SMS □□□□□□□□□□□□□□□

**2.** □□□□

□□□□□□□□□□□□□□□□

```
Action_Monthly_Plan_With_Cap = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_monthly-with-cap",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            # □□□10GB□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Included_Data__{10 * 1024 * 1024 *
1024}",
                "BalanceType": "*data",
                "DestinationIDs": "Dest_PLMN_OnNet",
                "Units": 10 * 1024 * 1024 * 1024,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,  # □□□□
                "Weight": 95
            },
            # $50□□□□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "Overage_Cap",
                "BalanceType": "*monetary",
                "DestinationIDs": "*any",
                "Units": 5000,  # $50.00□□□□
                "ExpiryTime": "*month",
                "BalanceWeight": 1000,  # □□□□□
                "Blocker": True,  # □□□□□$50□□□
                "Weight": 90
            }
        ]
    }]
}
```

□□□

1. □□□□10GB□□□□□ → □□□□□Included_Data_10GB□
2. □□□□□□□5GB → □Overage_Cap□□□□□□□□

3. □Overage_Cap□□$0 → □□□□□□□□□□□□□□□□□□□

**3.** □□□□□□□

□□□□□□□□□□□□□□□□□

```
Action_Trial_Account = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_trial-100-minutes",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            # 100□□□□□□□□□ - □□□□□□□
            {
                "Identifier": "*topup",
                "BalanceId": f"Trial_Voice__{100 * 60 *
1000000000}",
                "BalanceType": "*voice",
                "DestinationIDs": "Dest_Domestic_All",
                "Units": 100 * 60 * 1000000000,  # 100□□
                "ExpiryTime": "+720h",  # 30□
                "BalanceWeight": 1200,
                "Blocker": True,  # 100□□□□□□□
                "Weight": 10
            }
        ]
    }]
}
```

□□□ □□□□□□□100□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

**4.** □□□□□□□□

□□□□□□□□□□□□□□□□□□□□□

```
Action_Block_Premium_Numbers = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_block-premium",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            # □□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "Regular_Usage",
                "BalanceType": "*monetary",
                "DestinationIDs": "Dest_Domestic_All",
                "Units": 10000,  # $100
                "ExpiryTime": "*month",
                "BalanceWeight": 1000,
                "Weight": 20
            },
            # □□□□□□□□0900□□
            {
                "Identifier": "*topup",
                "BalanceId": "Premium_Blocker",
                "BalanceType": "*monetary",
                "DestinationIDs": "Dest_Domestic_Premium",
                "Units": 0,  # □□
                "BalanceWeight": 2000,  # □□□□□ - □□□□□□
                "Blocker": True,
                "Weight": 10
            }
        ]
    }]
}
```

□□□

- □□□□ → □□Regular_Usage□□
- □□□□□□ → □□Premium_Blocker□□□2000 > 1000□ → □□□

## □□□□□□□□

□□□`Blocker`□`Disabled`□□□

| □□ | □□□ | □□ |
| --- | --- | --- |
| □□ | □□□□□□□□□□□ | □□□□□□□ |
| □□ **> 0** | □□□□□□□ | □□□□□□/□□ |
| □□ **= 0** | □□□□□□□□□□ | □□□□□□□□□□□□□□□□ |
| □□ | □□□□□□□□□□□□□ | □□□□□□□□□ |

```
# □□□□□□□10GB□□□□□□□□
{
    "BalanceId": f"Data_Cap__{10 * 1024 * 1024 * 1024}",
    "Units": 10 * 1024 * 1024 * 1024,
    "Blocker": True  # □10GB□□□□□
}

# □□□□□□□□□□□□□□□□□□
{
    "BalanceId": f"Bonus_Data__{5 * 1024 * 1024 * 1024}",
    "Units": 5 * 1024 * 1024 * 1024,
    "Disabled": True  # □□□□□□□□□
}
```

## □□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□

```
Action_Safe_Hybrid_Plan = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_safe-hybrid-plan",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            {
                "Identifier": "*reset_account",
                "Weight": 700
            },
            # □□500□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Domestic_Voice__{500 * 60 *
1000000000}",
                "BalanceType": "*voice",
                "DestinationIDs": "Dest_Domestic_All",
                "Units": 500 * 60 * 1000000000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 95
            },
            # $20□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "Overage_Allowance",
                "BalanceType": "*monetary",
                "DestinationIDs": "*any",
                "Units": 2000,  # $20.00
                "ExpiryTime": "*month",
                "BalanceWeight": 1000,
                "Weight": 90
            },
            # $50□□□□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "Hard_Spending_Cap",
                "BalanceType": "*monetary",
                "DestinationIDs": "*any",
                "Units": 5000,  # $50.00□□□□
                "ExpiryTime": "*month",
```

```
                "BalanceWeight": 500,  # □□□□ - □□□□
                "Blocker": True,  # □□□□□□□□
                "Weight": 85
            }
        ]
    }]
}
```

□□□□□

1. **0-500**□□□ □□Domestic_Voice_500min□□□□
2. **500-700**□□□ □□Overage_Allowance□$0.10/□□ = $20□200□□□
3. **700-1200**□□□ □□Hard_Spending_Cap□$0.10/□□ = $50□500□□□
4. □**1200**□□□□ Hard_Spending_Cap□□ → □□□□□□□

□□□□□□1200□□□□□□□□□$50□□□□□□

## □□□□□□□□□□

1. □□□□□□□□□□

   ```
   "BalanceWeight": 9999  # □□□□□□□□□□
   ```

2. □□□□□□□□□□□□□

   ```
   "Units": 0,  # □□□□
   "Blocker": True
   ```

3. □□□□□□□□□□□□□

   - □□ActionTriggers□□□□□□□80%□90%□100%□□□□□
   - □□□□□□□□□□□□□□□□□□□

4. □□□□□□□□□□□

```
# □□*remove_balance□□□□□
{
    "Identifier": "*remove_balance",
    "BalanceId": "Suspension_Blocker"
}
```

5. □□□□□□□□

   - □□□□□□□□INSUFFICIENT_CREDIT_BALANCE_BLOCKER□□
   - □□CDR□□□□□ = -1.0 □□□□□□
   - □□□□□□□□□□□□□□□□□□□□

# □□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□

1. □□□□□□□□□□□□□□□□□□□□
2. DestinationIDs□□□□□□□□□□
3. □□□□□□□□□□□True

□□□□□□

```
# □□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.GetAccount',
    'params': [{"Tenant": tenant, "Account": "service_uuid"}]
})

# □□□
# - □□□□true
# - BalanceWeight□□□□□□□□9999□
# - DestinationIDs□□□□□□□□
# - □ = 0
```

□□□□□□□□□□□

□□□□□□ □□□□□□□□□□□□□□□

□□□□□ □□□□□□□□Blocker: true□□□□□□□□□□□□□□□□

# □□□□□□

## □□1□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
# □□□□□ +44-20-1234-5678□□□□□□□□

□□1□
  DestinationIDs: "Dest_UK_London"  # □□: "4420"□□□: 4□
  □: 100□□
  □□: 10

□□2□
  DestinationIDs: "Dest_UK_All"     # □□: "44"□□□: 2□
  □: 200□□
  □□: 10

# □□1□□□□□□□□4 > □□2□
# □□□□□□□□□□□□□
```

□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

## □□2□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
□□1□
  ID: "Premium_Data"
  □: 5GB
  □□: 20

□□2□
  ID: "Standard_Data"
  □: 10GB
  □□: 10

# □□1□□□□□□□□20 > □□10□
# □□□□2□□□□□
```

□□□ □□□□□□□□□□□□□□□□□□□□□□□□

## □□3□□□□□

□□□□□□□□□□□□□□□□□□□□

```
□□1□
  ID: "Data_Package_A"
  □: 5GB
  □□: 2024-12-25
  □□: 10

□□2□
  ID: "Data_Package_B"
  □: 10GB
  □□: 2025-01-15
  □□: 10
```

□□□□□□□□□□□□□□□□□□□□

```
# □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
□□1□
  ID: "Data_Package_A"
  □: 5GB
  □□: 2024-12-25
  □□: 11  # □□□□□□ = □□□□

□□2□
  ID: "Data_Package_B"
  □: 10GB
  □□: 2025-01-15
  □□: 10  # □□□□□□ = □□□□

# □□1□□□□□□□□□11 > □□10□
```

□□□□□ □□□□□□□□□□□□□□□□□□□□

```
- name: □□□□□□□□UUID
  set_fact:
    uuid: "{{ 99999999 | random | to_uuid }}"

- name: □□□□□5GB□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Categories": "*any",
          "Balance": {
            "ID": "Data_5GB_{{ uuid[0:8] }}",
            "Value": 5368709120,
            "ExpiryTime": "+120h",  # 5□
            "Weight": 10
          }
        }]
      }
```

□□□□□

- 12□24□□□□□ → □□5GB□□□□12□29□
- 12□25□□□□□ → □□5GB□□□□12□30□
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□10□□□□□□□□□□

## □□2□□□□□□□

□□□ “□□50GB□□”□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□

```
- name: □□□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "Rollover_Monthly_50GB",
            "Value": 53687091200,  # 50GB
            "ExpiryTime": "+720h",  # 30□
            "Weight": 10
          }
        }]
      }
```

□□□□□ □□□□□`*topup`□□□□□□□□□

□□□□□

- □1□□□□50GB□30□□□□
- □20□□□□30GB□□□20GB
- □20□□□□□□ → □□70GB□20GB + 50GB□□□□□□□□□□□20□□□30□

## □□3□□□□□□□□□□□

```
- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActions",
        "params": [{
          "ActionsId": "Action_Monthly_100GB_Reset",
          "Overwrite": true,
          "Actions": [{
            "Identifier": "*topup_reset",
            "BalanceType": "*data",
            "Units": 107374182400,  # 100GB
            "ExpiryTime": "*monthly",
            "BalanceId": "Monthly_Plan__107374182400",
            "Weight": 10
          }]
        }]
      }

- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActionPlan",
        "params": [{
          "Id": "ActionPlan_Monthly_100GB",
          "ActionPlan": [{
            "ActionsId": "Action_Monthly_100GB_Reset",
            "Time": "*monthly",
            "Weight": 10
          }],
          "Overwrite": true,
          "ReloadScheduler": true
        }]
      }

- name: □□□□□□□□□□□
```

```
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV2.SetAccount",
        "params": [{
          "Account": "{{ service_uuid }}",
          "ActionPlanIds": ["ActionPlan_Monthly_100GB"],
          "ReloadScheduler": true
        }]
      }
```

□□□□□

- □1□□□□□100GB□□□95GB□□□5GB
- □2□□□□□□□□□100GB□5GB□□□□□□□□
- □2□□□□□20GB□□□80GB
- □3□□□□□□□□□100GB□80GB□□□□□□□□

## □□4□□□□□□□□□□

□□□ □□□□“□□□□”□□□□□□□“□□□□”□□□□□□□□□□□□□□□□□

□□□

```
# □□□□□□□□□□□□
- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "Bonus_Data",
            "Value": 5368709120,  # 5GB
            "ExpiryTime": "+240h",  # 10□
            "Weight": 20  # □□□□□
          }
        }]
      }

# □□□□□□□□□□□□
- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "Regular_Data",
            "Value": 53687091200,  # 50GB
            "ExpiryTime": "+720h",  # 30□
            "Weight": 10  # □□□□□
          }
        }]
      }
```

□□□□□

- □□5GB□□□□□□□□20□+ 50GB□□□□□□□10□
- □□□□□□5GB□□□□
- □□□50GB□□□□□□□□
- □□□□□□□□□□

# □□□□□□□

CGRateS□□□□□□□□□□□□□□□□□□□□

## □□□□

***topup** - □□□□□□□□□□□ ***topup_reset** - □□□□□□□□□□□□□ ***debit** - □□□□□□
***debit_reset** - □□□□□□□□ ***reset_account** - □□□□□□

# □□□□□□

□OmniCRM□□□□□□□□□□□□□□□□□□□

## □□1□□□□□□□□□

□□□□□ → □□□□□□□ID□□UUID□ □□□□□ → □□□□□□□ID□`*topup_reset` □□□□□ → □□□□□□ID□`*topup`

## □□2□□□□□□□□□□□□□

□□ → □□`*topup`□□ □□ → □□`*topup_reset`□□ □□□ → □□□□□□□ID

## □□3□□□□□□□□□

□□□□ → □□□□□□□□□□□□/□□□□□□□□□□□□□□□□ □□□□ → □□□□□□□□□□□ = □□□□□□□□ □□□□ → □□□□□30□□□□□20□□□□□10□□□□ □□/□□□ → □□□□□□□□□□□□□□□□□□

## □□4□□□□□□□□□

□□□□□□ → □□□□□□□□`+720h`□30□□ □□ → □ActionPlan□□□`*monthly` □□□□ → □□ `*unlimited`□□□□□□□□□

# CGRateS□□□□□Playbooks□

□□□□□□□□□□□□□□□

```
- name: □□CGRateS□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActions",
        "params": [{
          "ActionsId": "Action_Name_Here",
          "Overwrite": true,  # □□□□□□□□
          "Actions": [
            {
              "Identifier": "*topup",  # □ *topup_reset
              "BalanceType": "*data",  # *data, *voice, *sms,
*monetary
              "Units": 5368709120,  # □□□□□
              "ExpiryTime": "+120h",  # +Xh, *unlimited, *monthly
              "DestinationIds": "*any",  # □□□*any
              "BalanceId": "Balance_Name",  # □□□□□
              "Weight": 10,  # □□□□□□ = □□□□□
              "Blocker": false,  # □□□true□□□□□□□
              "Disabled": false,  # □□□true□□□□□□□
              "SharedGroups": ""  # □□□□□□□□□
            },
            {
              "Identifier": "*cdrlog",  # □□□□□□□CDR
              "BalanceType": "*generic",
              "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"Addon Name\"}"
            }
          ]
        }]
      }
```

## □□□□

**ActionsId** - □□□□□□□□□□

**Identifier** - □□□□□`*topup`□`*topup_reset`□`*cdrlog`□□

**BalanceType** - □□□□□

- `*data` - □□□□□□□□
- `*voice` - □□□□□□□
- `*sms` - SMS□□□□□□
- `*monetary` - □□□□□□□□□□□
- `*generic` - □□□□

**Units** - □□/□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

**ExpiryTime** - □□□□□□□

- `+Xh` - □□□□□□□`+720h` = 30□□
- `*unlimited` - □□□□
- `*monthly` - □□
- `2024-12-31T23:59:59Z` - □□□□□

**BalanceId** - □□□□□□□□□□□ID = □□□□□ID = □□□

**Weight** - □□□□□□□□ = □□□□□□□□□□□□

**Blocker** - □□□true□□□□□□□□□□

**Disabled** - □□□true□□□□□□□□□□□

# □□Python□□□□□□□□□

□□□□□□□□□□□□□□□□Python□□□`cgrateshttpapi`□□□□□□□□□□□□□□□□□□
`OCS_Obj.SendData()`□□□□□

## □□□□

```
import cgrateshttpapi
import time

OCS_Obj = cgrateshttpapi.CGRateS("ocs.example.com", "2080")
tenant = "your_tenant_name"
tpid = str(tenant) + "_" + str(int(time.time()))
```

## □□□□□

□□□□

```
# □□□□□□□□□□□□□□□
1_GB = 1 * 1024 * 1024 * 1024  # 1073741824 □□
100_GB = 100 * 1024 * 1024 * 1024

# □□□□□□□□□□□□□□□
1_minute = 60 * 1000000000  # 60 □□□
3000_minutes = 3000 * 60 * 1000000000

# SMS□□□□□□□□□□□□
3000_sms = 3000
```

## □□ 1□□□□□□□□□□Python□

□□□□□□□□□□□□□□□□□□□□□□□□SMS□□□□□□□□□□□□□

```
Action_AU_Premium_Plan_1 = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_au-premium-plan-1",
        "Overwrite": True,
        "Tenant": str(tenant),
        "Actions": [
            # □□□□□□□□□□□□□□□
            {
                "Identifier": "*reset_account",
                "Weight": 700
            },
            # □□100GB□□□□
            # □□□□□□□□□□PLMN□□□□□□□□□□□□□
            # □□□□□□□□□□□□□□□□PLMN□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "AU_Data_Domestic__" + str(100 * 1024
* 1024 * 1024),
                "BalanceType": "*data",
                "DestinationIDs": "Dest_PLMN_OnNet",  # □□□□PLMN
□mcc505.mnc057□
                "Units": 100 * 1024 * 1024 * 1024,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 90
            },
            # □□3000□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "AU_Voice_Domestic__" + str(3000 * 60
* 1000000000),
                "BalanceType": "*voice",
                "DestinationIDs":
"Dest_AU_Mobile;Dest_AU_Fixed;Dest_AU_TollFree;",
                "Units": 3000 * 60 * 1000000000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 89
            },
            # □□3000 SMS□□
            {
```

```
                "Identifier": "*topup_reset",
                "BalanceId": "AU_SMS_Domestic__" + str(3000),
                "BalanceType": "*sms",
                "DestinationIDs": "Dest_AU_Mobile;",
                "Units": 3000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 88
            },
            # □□6GB□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "AU_Roaming_Data__" + str(6 * 1024 *
1024 * 1024),
                "BalanceType": "*data",
                "DestinationIDs": "Dest_Roaming_All",
                "Units": 6 * 1024 * 1024 * 1024,
                "ExpiryTime": "*month",
                "BalanceWeight": 1100,
                "Weight": 87
            },
            # □□□□□□□CDR
            {
                "Identifier": "*cdrlog",
                "BalanceId": "",
                "BalanceUuid": "",
                "BalanceType": "*generic",
                "Directions": "*out",
                "Units": 0,
                "ExpiryTime": "",
                "Filter": "",
                "TimingTags": "",
                "DestinationIds": "",
                "RatingSubject": "",
                "Categories": "",
                "SharedGroups": "",
                "BalanceWeight": 0,
                "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"AU Premium Plan
1\"}",
                "BalanceBlocker": "false",
                "BalanceDisabled": "false",
                "Weight": 80
            }
```

```
        ]
    }]
}

# □□□□□□□□□CGRateS
result = OCS_Obj.SendData(Action_AU_Premium_Plan_1)
assert result['error'] is None or result['error'] == "EXISTS"
print("□□□□□Action_au-premium-plan-1")
```

□□□□

- □□□□*reset_account□□□□□
- □□*topup_reset□□□□□□□□□□□□□□□□
- BalanceWeight□□□□□□□□□□1200 > □□1100□
- Weight□□□□□□□□□□
- □□*cdrlog□□□□□

## □□ 2□□□□□□□□Python□

□□□□□20GB□□□□□□□□□□

```
Action_AU_Data_Addon_20GB = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_au-data-addon-20gb",
        "Overwrite": True,
        "Tenant": str(tenant),
        "Actions": [
            # □□□□□□□
            {
                "Identifier": "*reset_account",
                "Weight": 700
            },
            # □□20GB□□
            # □□□□□□□PLMN□□□□□□□□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "AU_Data_Domestic__" + str(20 * 1024
* 1024 * 1024),
                "BalanceType": "*data",
                "DestinationIDs": "Dest_PLMN_OnNet",  # □□□□PLMN
□mcc505.mnc057□
                "Units": 20 * 1024 * 1024 * 1024,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 90
            }
        ]
    }]
}

result = OCS_Obj.SendData(Action_AU_Data_Addon_20GB)
assert result['error'] is None or result['error'] == "EXISTS"
print("□□□□□Action_au-data-addon-20gb")
```

## □□ 3□□□□□□□□Python□

□□□□□□□□□□□□□

```
Action_AU_International_Voice_100min = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_au-international-voice-100min",
        "Overwrite": True,
        "Tenant": str(tenant),
        "Actions": [
            {
                "Identifier": "*reset_account",
                "Weight": 700
            },
            # □□100□□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": "AU_Voice_International__" + str(100
* 60 * 1000000000),
                "BalanceType": "*voice",
                "DestinationIDs": "Dest_International_All",
                "Units": 100 * 60 * 1000000000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1000,
                "Weight": 90
            }
        ]
    }]
}

result = OCS_Obj.SendData(Action_AU_International_Voice_100min)
assert result['error'] is None or result['error'] == "EXISTS"
print("□□□□□Action_au-international-voice-100min")
```

□□□ □□/SMS□□□□□□□□□□□□□□□□□□□□□□□□□PLMN□□□□□□□□□□□□□□□□□□□

- **Actions** - □□□□□□□□□□□

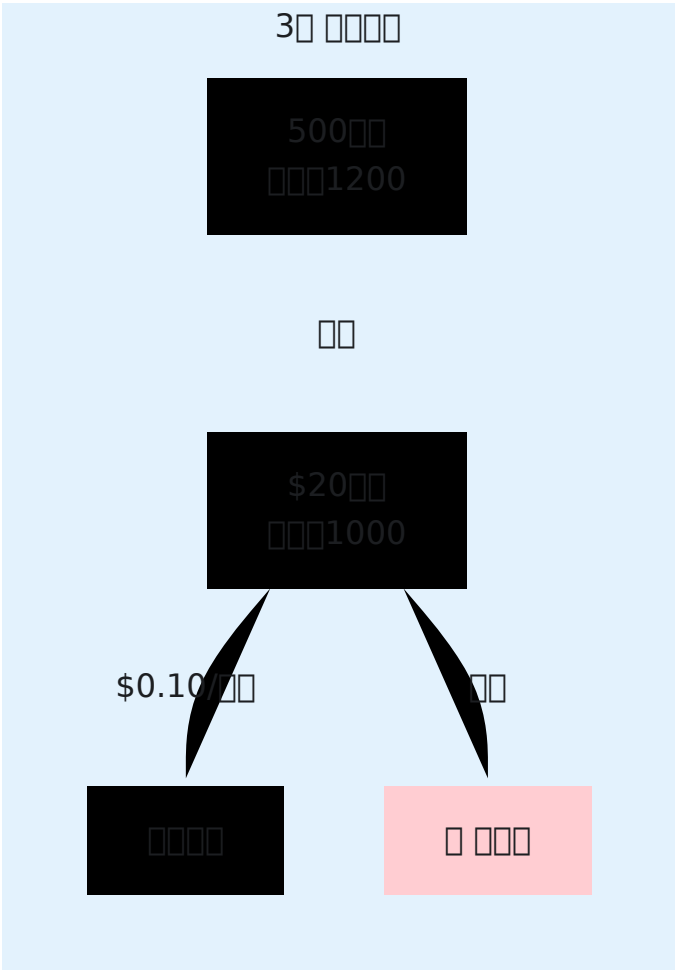
□□□□□□□

- **Identifier** - □□□□□`*topup`□`*topup_reset`□`*reset_account`□`*cdrlog`□□
- **BalanceId** - □□□□□□□□□□□□□□□□□□□□□
- **BalanceType** - □□□□□`*data`□`*voice`□`*sms`□`*monetary`□
- **DestinationIDs** - □□□□□□□□□□□□
  - □□□□/**SMS**□□□□□□□□□□
    □□`"Dest_AU_Mobile"`□`"Dest_International_UK"`□
  - □□□□□□□PLMN□□□□□□□`"Dest_PLMN_OnNet"`□`"Dest_PLMN_US_Verizon"`□
- **Units** - □□□□□□□□□□□□□□□□□□□□□□□□□SMS□□□□□□□
- **ExpiryTime** - □□□□□□□`*month`□`+720h`□`2024-12-31`□□
- **BalanceWeight** - □□□□□□□□□□□□
- **Weight** - □□□□□□□□□□□□□□□□
- **Blocker**□□□□ - □□□□□□□□`True`□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□□□□

□CGRateS□□□□□□□□□□□□□□□□□□□


3□ □□□□
500□□
□□□1200
□□
$20□□
□□□1000
$0.10/□□
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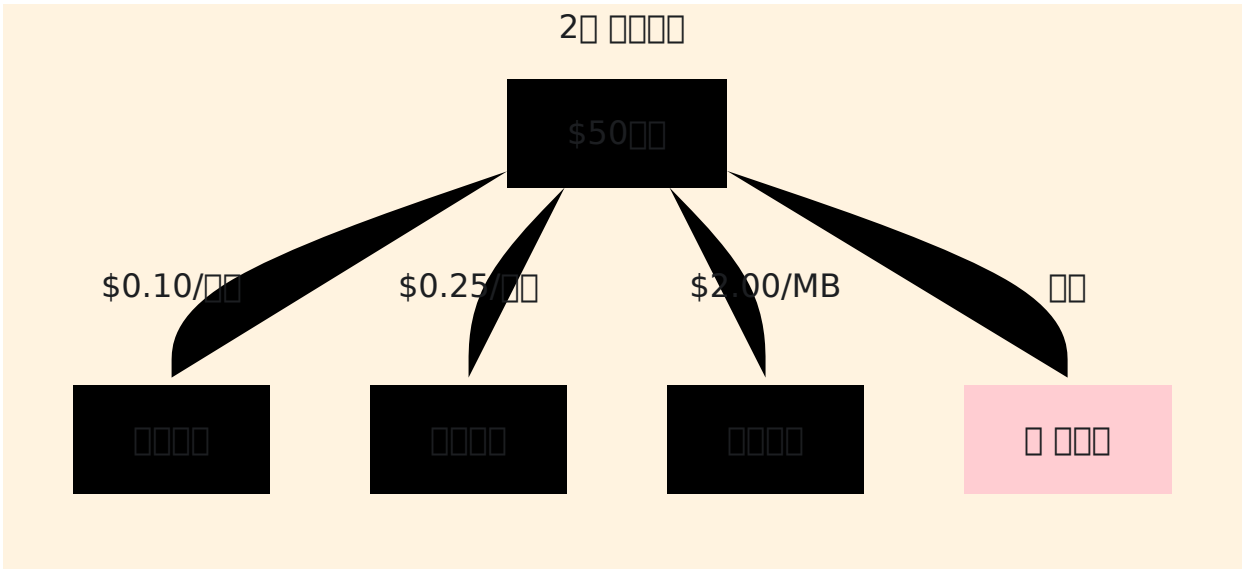
2□ □□□□
$50□□
$0.10/□□
$0.25/□□
$2.00/MB
□□
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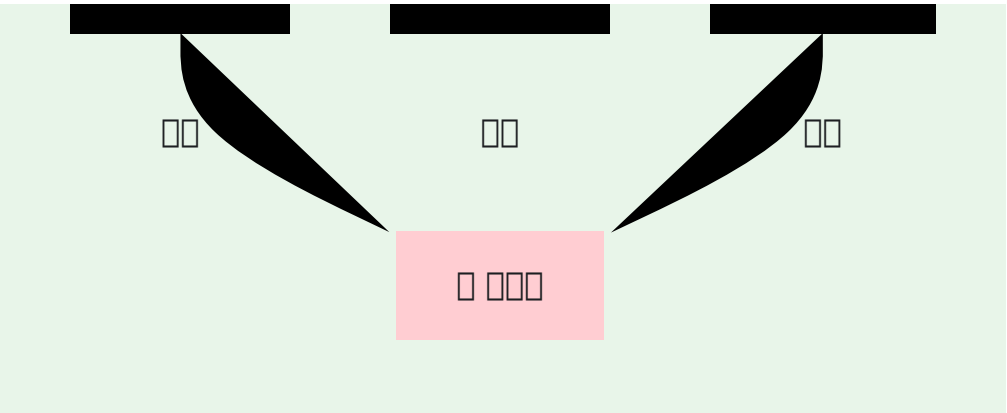
1□ □□□□□□
500□□
□□
100□□
□□
5GB□□
□□



## □□ 1□□□□□

□□□ □□□□□□

```
Action_Domestic_Plan = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_domestic-plan",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            {
                "Identifier": "*reset_account",
                "Weight": 700
            },
            # 500□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Domestic_Voice__{500 * 60 *
1000000000}",
                "BalanceType": "*voice",
                "DestinationIDs": "Dest_Domestic_All",  # □□□□
                "Units": 500 * 60 * 1000000000,  # 500□□□□□□□□
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 90
            },
            # 1000□□□SMS
            {
                "Identifier": "*topup_reset",
                "BalanceId": "Domestic_SMS__1000",
                "BalanceType": "*sms",
                "DestinationIDs": "Dest_Domestic_All",
                "Units": 1000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 89
            },
            # 10GB□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Domestic_Data__{10 * 1024 * 1024 *
1024}",
                "BalanceType": "*data",
                "DestinationIDs": "Dest_PLMN_OnNet",  # □□□□PLMN
                "Units": 10 * 1024 * 1024 * 1024,
```

```
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 88
            },
            {
                "Identifier": "*cdrlog",
                "BalanceType": "*generic",
                "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"Domestic Plan\"}",
                "Weight": 80
            }
        ]
    }]
}

result = OCS_Obj.SendData(Action_Domestic_Plan)
assert result['error'] is None or result['error'] == "EXISTS"
```

□□□□□

- □□□□□1-555-1234□→ □□500□□□□
- □□□□□44-20-xxx□→ □□□□□□□□□□□□□□□□□□□□□□□□□□
- □□SMS → □□1000□SMS□□
- □□□□□□ → □□10GB□□
- □□□□ → □□□□□□□□□□□□□□□□□□□□

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- □□□□□□□□□

## □□ 2□□□□□□□□□

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□□ **1**□□□□□□**10**□□

- □□□$0.10/□□
- □□□10 × $0.10 = $1.00
- □□□$49.00

□□ **2**□□□□□□□□**5**□□

- □□□$0.25/□□ + $0.05□□□
- □□□□5 × $0.25□ + $0.05 = $1.30
- □□□$47.70

□□ **3**□□**Verizon**□□□**100MB**□□

- □□□$2.00/MB
- □□□100 × $2.00 = $200.00
- □□□□□□□ → □□□□$47□□23MB□□□□□

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- □□□□□□□□□ - □□□□
- □□□□□□□□□□□□□□□□□□
- □□□□

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- □□□□□□□□□□□□□□□
- □□□□□□□□□□□□

# □□ 3□□□□□□□□□□□□

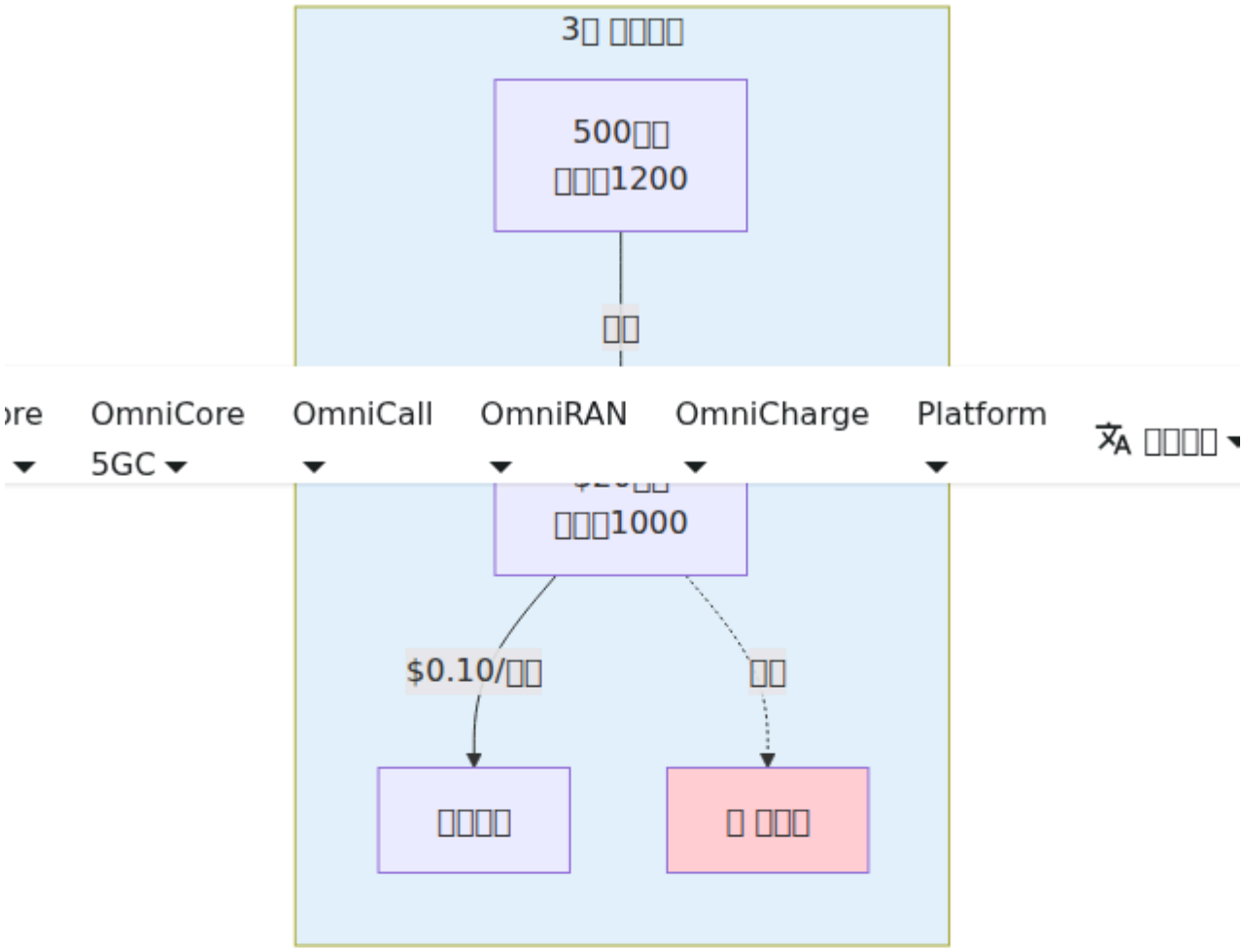
□□□ □□□□□□□□□□□□□□□□□□

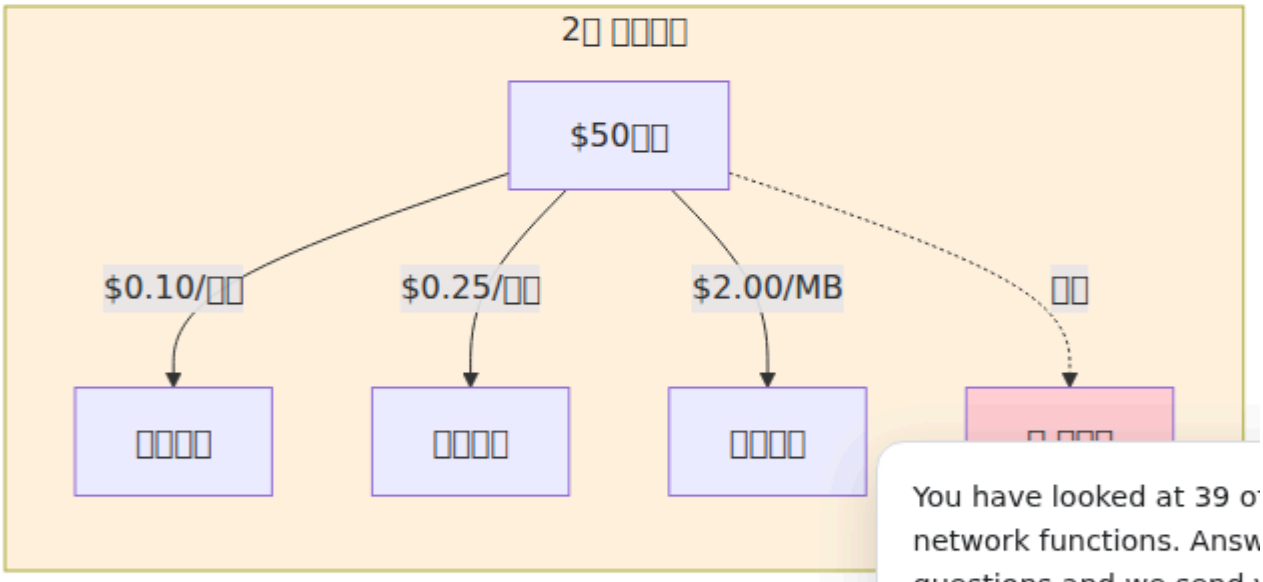
```
Action_Hybrid_Plan = {
    "id": "0",
    "method": "ApierV1.SetActions",
    "params": [{
        "ActionsId": "Action_hybrid-flex-plan",
        "Overwrite": True,
        "Tenant": tenant,
        "Actions": [
            {
                "Identifier": "*reset_account",
                "Weight": 700
            },

            # ============= □□□□□□□□□ =============
            # 500□□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Domestic_Voice__{500 * 60 *
1000000000}",
                "BalanceType": "*voice",
                "DestinationIDs": "Dest_Domestic_All",
                "Units": 500 * 60 * 1000000000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,  # □□□□□□□□□
                "Weight": 95
            },
            # 100□□□□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"International_Voice__{100 * 60 *
1000000000}",
                "BalanceType": "*voice",
                "DestinationIDs": "Dest_International_All",
                "Units": 100 * 60 * 1000000000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1150,  # □□□□□□□□□
                "Weight": 94
            },
            # 1000□□□SMS
            {
                "Identifier": "*topup_reset",
                "BalanceId": "Domestic_SMS__1000",
                "BalanceType": "*sms",
```

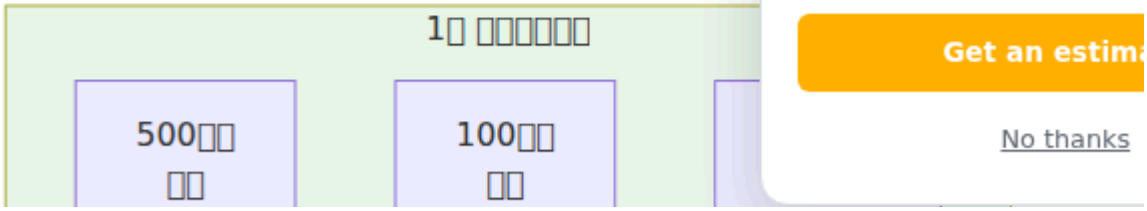
```
                "DestinationIDs": "Dest_Domestic_All",
                "Units": 1000,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 93
            },
            # 15GB□□□□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Domestic_Data__{15 * 1024 * 1024 *
1024}",
                "BalanceType": "*data",
                "DestinationIDs": "Dest_PLMN_OnNet",
                "Units": 15 * 1024 * 1024 * 1024,
                "ExpiryTime": "*month",
                "BalanceWeight": 1200,
                "Weight": 92
            },
            # 2GB□□□□□□□1□
            {
                "Identifier": "*topup_reset",
                "BalanceId": f"Roaming_Zone1_Data__{2 * 1024 *
1024 * 1024}",
                "BalanceType": "*data",
                "DestinationIDs": "Dest_PLMN_Zone_NorthAmerica",
                "Units": 2 * 1024 * 1024 * 1024,
                "ExpiryTime": "*month",
                "BalanceWeight": 1100,
                "Weight": 91
            },

            # ============= □□□□□□□/□□□□□ =============
            # $20□□□□
            {
                "Identifier": "*topup",
                "BalanceId": "PAYG_Overflow_Balance",
                "BalanceType": "*monetary",
                "DestinationIDs": "*any",
                "Units": 2000,  # $20.00
                "ExpiryTime": "*month",
                "BalanceWeight": 1000,  # □□□□□□□□□
                "Weight": 90
            },
```

```
            {
                "Identifier": "*cdrlog",
                "BalanceType": "*generic",
                "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"Hybrid Flex
Plan\"}",
                "Weight": 80
            }
        ]
    }]
}

result = OCS_Obj.SendData(Action_Hybrid_Plan)
```

□□□□□□□

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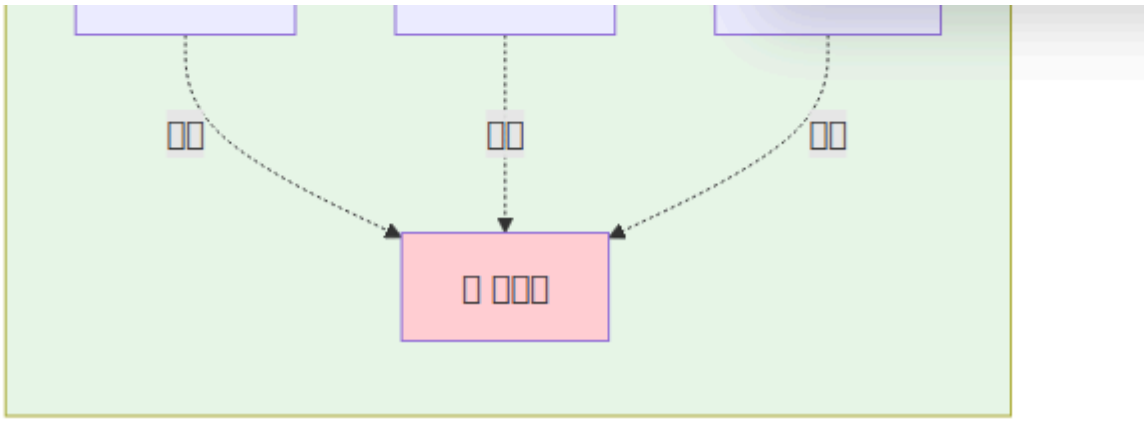
questions and we send y
estimate.
Get an estima
No thanks

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**□□1□□□600□□□□□□**

1. □500□□ → □□“Domestic_Voice_500min”□□□1200□ - □□
2. □□□□100□□ → “Domestic_Voice_500min”□□□□□□“PAYG_Overflow_Balance”□□□1000□
3. □□□100□□ × $0.10 = $10.00 □□□□□□□□
4. □□□$10.00□□

**□□2□150□□□□□□□□□□□□**

1. □100□□ → □□“International_Voice_100min”□□□1150□ - □□
2. □□□□50□□ → □□□“PAYG_Overflow_Balance”
3. □□□□50 × $0.25□ + $0.05□□ = $12.55
4. □□□$7.45□□□□□□□□□□□$20□

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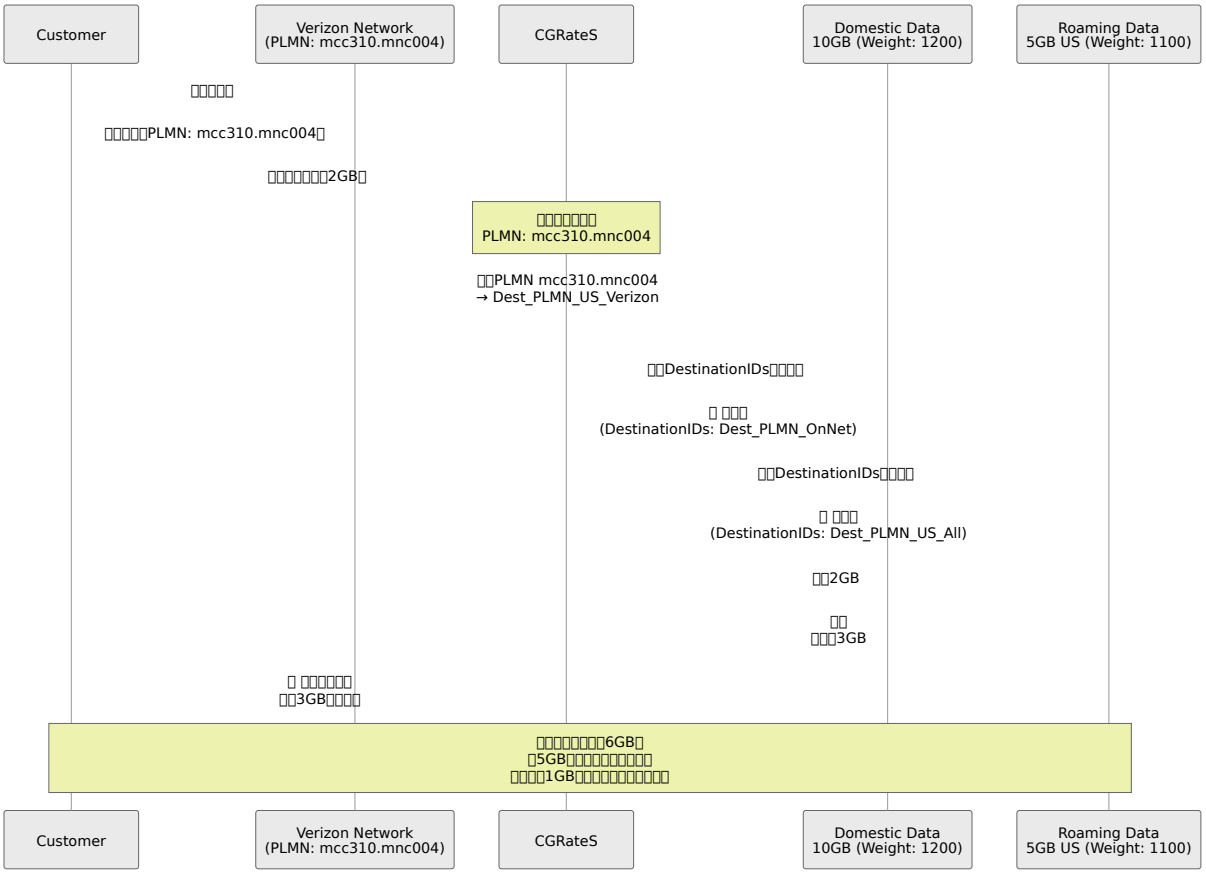


□□□□□

1. CGRateS□□□PLMN `mcc310.mnc004`□□□□□□
2. □□□□□□`Dest_PLMN_US_Verizon`
3. □□□□□□□`DestinationIDs: "Dest_PLMN_US_All"`□□□□□□□□
4. □□□“Roaming_US_Data_5GB”□□□BalanceWeight: 1100□
5. □□2GB
6. □□□ 3GB□□□□

□□□□□□□**6GB**□□

1. □5GB → □□□□□□□□□□
2. □□□□1GB → □□□□□□
3. □□□□□□ → □□□□□ □5GB

# □□3□□□□□□□□□□□□□□□□□□□□

□□□□□ □□□□□500□□□□□□ + $20□□

□□□ □□600□□□□□□□

□□□□□

1. □500□□□
    - □□“Domestic_Voice_500min”□BalanceWeight: 1200□
    - □□□
2. “Domestic_Voice_500min”□□
3. □□□□100□□□
    - □□□“PAYG_Overflow_Balance”□BalanceWeight: 1000□
    - □□□$0.10/□□
    - □□□100 × $0.10 = $10.00
    - □$20□□□□□□□
    - □□□ $10.00

□□□

- □□□□□500□□□□ + 100□□□□□$10.00□

# □□4□□□□□□□□□□□

□□□□□ $50□□□□□□

□□□ □□□□□□□Verizon□□□□□100MB□□□□□□□□

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1. □Verizon□□□100MB
2. □□□$2.00/MB□□□□□□□□□□□
3. □□□□100 × $2.00 = $200.00
4. □□□$50.00
5. □□□ □□□□□□□□□□□□□□25MB□□□□□□
6. □□□□□ □□□□□□□□□□$50

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# □□□□

## 1. □□□□□□□□ID

□□□□ID□□□□□□□□

```
# □
"Data_5GB_5days_{{ uuid }}"
"Voice_100min_Monthly"
"Bonus_Data_Loyalty"

# □
"balance1"
"data"
"temp"
```

## 2. □□□□□□□□□

□□□□□□□□□□□□□□□□□□□□

```
# □□□□□□
# 30 = □□/□□□□
# 20 = □□/□□□□
# 10 = □□/□□□□
# 5 = □□/□□□□
```

## 3. □□CDR□□□□

□□□□□□□□□□□□□□□□

```
{
  "Identifier": "*cdrlog",
  "BalanceType": "*generic",
  "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"{{ package_name
}}\"}"
}
```

## 4. □□ActionPlans□□□□□□

□□□□□□□□□□□□□□□□□□□□ActionPlans□

```
# □□□□□□□□ActionPlan
- name: □□□□ActionPlan
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActionPlan",
        "params": [{
          "Id": "ActionPlan_Monthly_Reset",
          "ActionPlan": [{
            "ActionsId": "Action_Monthly_Reset",
            "Time": "*monthly",
            "Weight": 10
          }],
          "ReloadScheduler": true
        }]
      }
```

## 5. □□□□□□ActionTriggers

□□□□□□□□□□□□□□□□□□□□□□

```
- name: □□ActionTriggers
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "APIerSv1.ResetAccountActionTriggers",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "Executed": false
        }]
      }
```

## 6. □□□□□□□□□□

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```
# □□□□□□□□□□□□□
BalanceWeight: 1200  # □□□□□□□□□□□□□□□
BalanceWeight: 1150  # □□□□□□□□□□□□□□□
BalanceWeight: 1100  # □□□□□□□□□□□□□□□
BalanceWeight: 1000  # □□□□□□□□□□□
```

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```
# □ - □□□□□□□□□
{
    "BalanceType": "*voice",
    "DestinationIDs": "Dest_International_UK",  # □□□□
    "Units": 200 * 60 * 1000000000
}

# □ - □□□□
{
    "BalanceType": "*voice",
    "DestinationIDs": "*any",  # □□□□□□□□□□
    "Units": 200 * 60 * 1000000000
}
```

## 8. □□□□□□□

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```
# □ - □□□□
"Dest_International_Europe" = □□□□□□□□□□500□□□□

# □ - □□□□
"Dest_France", "Dest_Germany", "Dest_Italy"□□□□□□□
```

□□□ CGRateS Destinations □□□□□□□□□□□

## 9. □□□□□□□□□□

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```
# □□□□□□□□□□□□□□□
{
    "BalanceType": "*monetary",
    "Units": 1000,  # $10□□□□
    "BalanceWeight": 1000  # □□□□□□
}
```

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## 10. □□□□□□□□□□□

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```
# □□□□□□□□□□□□
"RateIncrement": "1s"

# □□□□□6□□
"RateIncrement": "6s"

# □□□30□□□□□□□
"RateIncrement": "30s"

# □□□□KB□□□□□□□
"RateIncrement": "1024"
```

## 11. □□□□□□□□□□

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```
# □□□□□□
"ExpiryTime": "*month"

# □□□□□/□□□
"ExpiryTime": "+720h"  # 30□

# □□□□□□□□□□□□□□□
"ExpiryTime": "+2160h"  # 90□

# □□□□□□□□□□□□
"ExpiryTime": "+360h"  # 15□
```

# □□□□

## □□□□□□□□

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## □□□□□□□

□□□ □□`*topup`□□□□□□□

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- □□□`*topup_reset`□□□`*topup`

□□□□□ □□□□ID□□□□□□□

## □□□□□□□□

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1. DestinationIDs□□□ - □□□□□□□□□□□□□□□
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3. □□□□□□□□□□□

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```
# □□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.GetAccount',
    'params': [{"Tenant": tenant, "Account": "service_uuid"}]
})

# □□□□□□□□□
# - □□□□□□
# - DestinationIDs□□□□
# - □□□□□□□□□
# - □□ > 0□
```

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1. PLMN□□□□□□□ - □□□□□□□□□□PLMN
2. □□□□□□□□□/□□□□□□
3. DestinationIDs□□□PLMN□□□

□□□□□

```
# □□□□□□□□□PLMN□□□CDR□□□□□□□
# □□□□□□□□□□□PLMN□
"DestinationIDs": "Dest_PLMN_US_All"  # □□□mcc310.mnc004
```

□□□ CGRateS Destinations □□□PLMN□□□□□□ □□2□□□□□□□□□□□□□□ □□□□□□□□□

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1. □□□□□DestinationIDs□□□□□`*any`□
2. □□□□□□□□□□□□□□□□
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- □□□□□□□□□`DestinationIDs: "*any"`
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□

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3. □□□□□□□□□□□□□□□□

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- □□CDR□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□
- □□NANP□□□□□□□□□□□□□□□□□□□□□□□□

□□□ CGRateS Destinations □□□□□□□□□□

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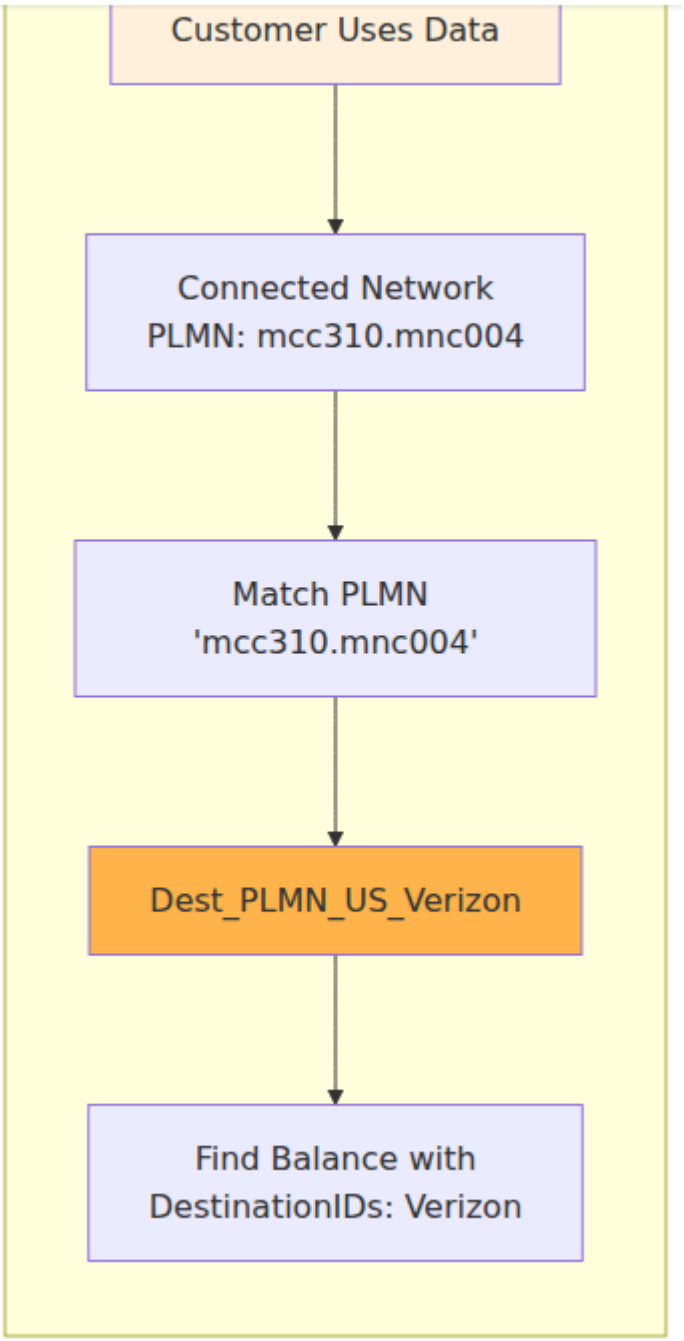
- □□□□ - □□□□□□□□CGRateS□□□□□□□□□□□□□□□□□□□□
- CGRateS Destinations - □□□□□□□□□□□□□□□□□□□□PLMN□□□

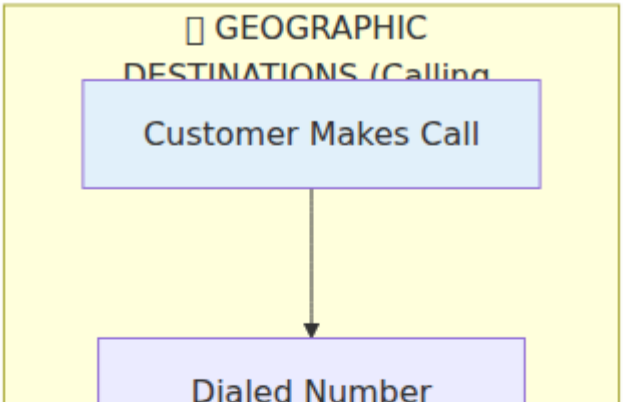
## □□□□□

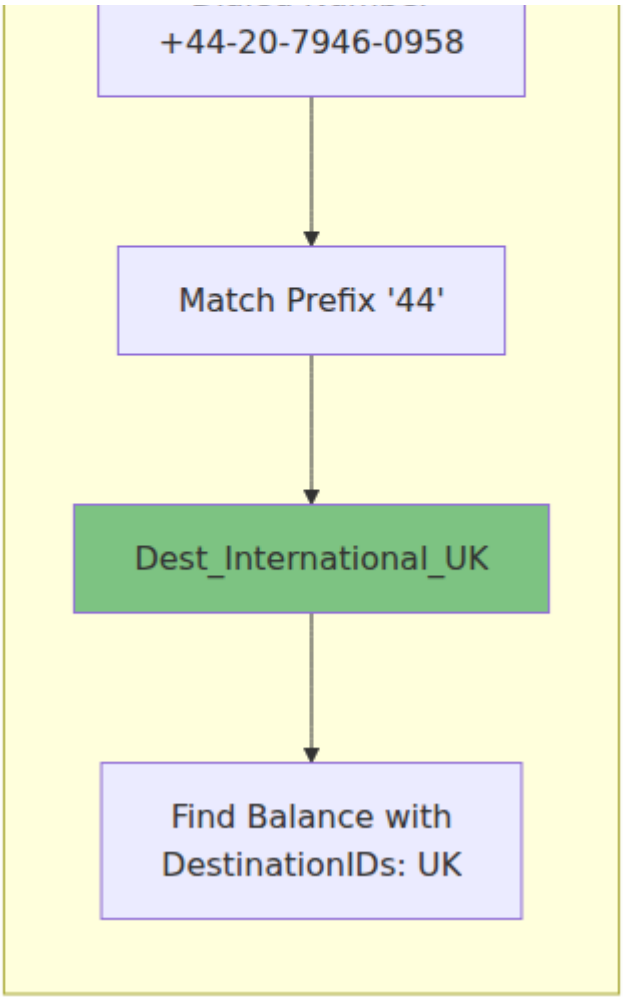
- □□Playbooks□□□□□□ - □□□□□□□□□□□□□□□□□□□□□□□□
- Ansible Playbooks□□ - Playbook□□□□□□□□□□□□□□□□□□
- □□□□□□ - OmniCRM□□□□□□□□

# CGRateS □□□□□

□□□□□□□□□□ OmniCRM □ CGRateS □□□□□□□□□□□


Customer Uses Data
Connected Network
PLMN: mcc310.mnc004
Match PLMN
'mcc310.mnc004'
Dest_PLMN_US_Verizon
Find Balance with
DestinationIDs: Verizon


GEOGRAPHIC
Customer Makes Call
Dialed Number




## □□□□

- □□/**SMS** □□ → □□□□□□□□□□□□□□□□
- □□□□ → □□ PLMN □□□□□□□□□□□□□

## □□□□

```
import cgrateshttpapi
import time

OCS_Obj = cgrateshttpapi.CGRateS("ocs.example.com", "2080")
tenant = "your_tenant_name"
tpid = str(tenant) + "_" + str(int(time.time()))
```

# □ 1 □□□□□□□□□□□□□□□□□□□□

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## □□□□□

```
#
# ============================================================================
# DOMESTIC DESTINATIONS (US/Canada - NANP)
#
# ============================================================================

# US/Canada Mobile & Fixed (share area codes)
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_Domestic_All",
        "Prefixes": ["1"]  # NANP (US/Canada)
    }]
})

# US Toll-Free
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_Domestic_TollFree",
        "Prefixes": ["1800", "1888", "1877", "1866", "1855",
"1844", "1833"]
    }]
})

# US Premium Rate
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_Domestic_Premium",
        "Prefixes": ["1900"]
    }]
})
```

## □□□□□

```
#
# ============================================================================
# INTERNATIONAL DESTINATIONS (By Country)
#
# ============================================================================

# United Kingdom
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_International_UK",
        "Prefixes": ["44"]
    }]
})

# China
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_International_China",
        "Prefixes": ["86"]
    }]
})

# Australia - Mobile
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_AU_Mobile",
        "Prefixes": ["614"]  # Australian mobiles (04xx dialed as
614xx)
    }]
})

# Australia - Fixed Line
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
```

```
        "TPid": tpid,
        "ID": "Dest_AU_Fixed",
        "Prefixes": [
            "612",  # NSW (Sydney)
            "613",  # VIC (Melbourne)
            "617",  # TAS (Hobart)
            "618"   # SA, WA, NT (Adelaide, Perth, Darwin)
        ]
    }]
})

# Australia - Toll-Free
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_AU_TollFree",
        "Prefixes": [
            "611800",  # Toll-free
            "611300"   # Local rate
        ]
    }]
})

# Australia - Premium Rate
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_AU_Premium",
        "Prefixes": ["6119"]  # Premium rate services
    }]
})

# Europe (grouped)
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_International_Europe",
        "Prefixes": [
            "33",  # France
            "49",  # Germany
            "39",  # Italy
```

```
            "34",  # Spain
            "31",  # Netherlands
            "32",  # Belgium
            "41"   # Switzerland
        ]
    }]
})

# International - All (catch-all, excludes domestic)
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_International_All",
        "Prefixes": ["2", "3", "4", "5", "6", "7", "8", "9"]  # All except "1" (NANP)
    }]
})
```

□□□

- □□□□□“□□□□□□/□□□□□” → `Dest_Domestic_All`
- □□□□□□□□□“100□□□□□□” → `Dest_International_UK`
- □□□□□□□“3000□□□□□□□□□□□□□□” → `Dest_AU_Mobile`, `Dest_AU_Fixed`, `Dest_AU_TollFree`
- □□□□□“50□□□□□□□□□” → `Dest_International_All`

# □ 2 □□□PLMN □□□□□□□□□ - □□/□□□□□

PLMN □□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `mccXXX.mncYYY`□□□□

- **MCC** = □□□□□□□3 □□□□
- **MNC** = □□□□□□□2-3 □□□□□

## PLMN □□□□

- □□□□□`"mcc310.mnc004"` → □ Verizon □□ 004
- □□□□□□□□`"mcc310"` → □□□□□□

- □□□`mcc310.mnc004`□`mcc234.mnc015`□`mcc505.mnc057`

## □□□□□□□□□□

□□□□□□□□□□□□□□□ SIM □□□□□□□□□□

```
# □□□□□□□□□□□
# □□□□□□□□ PLMN - □□□□□ SIM □□□□□□□
# □□□□□□□□□□□□□□□□□□□□

OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_OnNet",
        "Prefixes": ["mcc505.mnc057"]  # □□□□□□□□□□□□□□□□□ MCC 505□
MNC 57
    }]
})
# □ mcc505.mnc057 □□□□□□□□□□ PLMN □□
# □□□□□□□□□□□□□□□□□□□□□□□□
# □□□□□□□□□
```

## □□□□ PLMN □□□

```
#
# ============================================================================
# US ROAMING PLMN DESTINATIONS
#
# ============================================================================

# Verizon Wireless
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_US_Verizon",
        "Prefixes": [
            "mcc310.mnc004", "mcc310.mnc010", "mcc310.mnc012",
"mcc310.mnc013",
            "mcc311.mnc480", "mcc311.mnc481", "mcc311.mnc482",
"mcc311.mnc483"
        ]
    }]
})

# □□□□ PLMN□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_US_All",
        "Prefixes": ["mcc310", "mcc311", "mcc312", "mcc313",
"mcc316"]
    }]
})
# □□□□□□□□□□□□□ MCC□310□311 □□□□□
# □ mcc310.mnc004□Verizon□□mcc310.mnc410□AT&T□□mcc311.mnc580□US
Cellular□□□□□
# □□□□□□□□□
```

## □□□□ PLMN □□□

```
#
# ============================================================================
# UK ROAMING PLMN DESTINATIONS
#
# ============================================================================

# Vodafone UK
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_UK_Vodafone",
        "Prefixes": ["mcc234.mnc015"]
    }]
})

# EE (Everything Everywhere)
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_UK_EE",
        "Prefixes": ["mcc234.mnc030", "mcc234.mnc033"]
    }]
})

# □□□□ PLMN
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_UK_All",
        "Prefixes": ["mcc234"]
    }]
})
```

## □□□□□□□□□

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```
#
================================================================================
# ROAMING ZONES (Multi-Country Groups)
#
================================================================================

# □□ 1□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_Zone_NorthAmerica",
        "Prefixes": [
            "mcc310", "mcc311", "mcc312", "mcc313", "mcc316",  # □
□
            "mcc302", "mcc334"  # □□□
        ]
    }]
})
# □□□ MCC □□□□□□□□□□□□□□□□□□□□
# □□□□“□□□□”□□□□□□□□□□□□

# □□ 2□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_Zone_Europe",
        "Prefixes": [
            "mcc234",  # □□
            "mcc208",  # □□
            "mcc262",  # □□
            "mcc222",  # □□□
            "mcc214",  # □□□
            "mcc228"   # □□
        ]
    }]
})

# □□ 3□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
```

```
        "TPid": tpid,
        "ID": "Dest_PLMN_Zone_AsiaPacific",
        "Prefixes": [
            "mcc505",  # □□□□
            "mcc460",  # □□
            "mcc454",  # □□
            "mcc440",  # □□
            "mcc520",  # □□
            "mcc525",  # □□□
            "mcc530"   # □□□
        ]
    }]
})

# □□□□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_Roaming_All",
        "Prefixes": ["mcc"]  # □□□□ PLMN□□□□□□
    }]
})
```

□□□

- □□□□□□□“□□ Verizon □ 5GB” → `Dest_PLMN_US_Verizon`
- □□□□□“□□□□□□□□10GB” → `Dest_PLMN_US_All`
- □□□□□“□□□□ 15GB” → `Dest_PLMN_Zone_Europe`
- □□□□□“□□□□ 1GB” → `Dest_Roaming_All`

# □□□□□□□□

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|---|---|---|---|
| □□ | □□/□□□□□□□ | “100□□□□□□□□” | □□□SMS |
| □□ **PLMN** | □□□□□□□□□□□□ | “100GB □□□□” | □□ |
| □□ **PLMN** | □□□□□□□□□□□□ | “□□ Verizon □ 5GB” | □□□□□□□□/SMS□ |
| □□ **PLMN** | □□□□□□□□□□□ | “□□□□□□□□5GB” | □□□□□□□□/SMS□ |
| □□ **PLMN** | □□□□□□ | “10GB □□□□” | □□□□□□□□/SMS□ |

# □□□□□□□□□□□□

## □□□□□□□□□

□□□□□ CGRateS □□□□□□ □□ **ID** □□□□□□□□□□□□□□□□□□□□□□□□ PLMN □□□ □□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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## □□ 1□□□□□□□

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```
# □□□□□ - □ 3 □□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_Zone_Europe",
        "Prefixes": [
            "mcc262",  # □□
            "mcc208",  # □□
            "mcc222"   # □□□
        ]
    }]
})
```

□□ `Dest_PLMN_Zone_Europe` □□□□□□□ □□□□□□□□□□□□□□□□□□

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```
# □□□□□ - □□ 5 □□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_Zone_Europe",
        "Prefixes": [
            "mcc262",  # □□
            "mcc208",  # □□
            "mcc222",  # □□□
            "mcc214",  # □□□□□□□
            "mcc234"   # □□□□□
        ]
    }]
})

# □□□□□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV1.LoadTariffPlanFromStorDb',
    'params': [{
        "TPid": tpid,
        "DryRun": False,
        "Validate": True
    }]
})

# □□□□□□□□□□
OCS_Obj.SendData({
    'method': 'CacheSv1.ReloadCache',
    'params': [{
        "DestinationIDs": ["Dest_PLMN_Zone_Europe"]
    }]
})
```

□□□ □□□□□□□□□□□□□□□□□□□□ `Dest_PLMN_Zone_Europe` □□□□□□□□□□□□□□□□ - □□□□□□□□□□

## □□ 2□□□□□□□

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```
# □□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_Zone_Europe",
        "Prefixes": [
            "mcc208",  # □□
            "mcc222",  # □□□
            "mcc214",  # □□□
            "mcc234"   # □□
            # □□□mcc262□□□□
        ]
    }]
})

# □□□□□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV1.LoadTariffPlanFromStorDb',
    'params': [{
        "TPid": tpid,
        "DryRun": False,
        "Validate": True
    }]
})

# □□□□□□□
OCS_Obj.SendData({
    'method': 'CacheSv1.ReloadCache',
    'params': [{
        "DestinationIDs": ["Dest_PLMN_Zone_Europe"]
    }]
})
```

□□□ □□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□ `Dest_PLMN_Zone_Europe`□□□□□□□□ □□□□ PLMN □□□□

## □□ 3□□□/SMS □□□□□

□□□□□□□□□□□ SMS □□□□□□□

```
# □□□□□□□□“□□”□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_Domestic_All",
        "Prefixes": [
            "1",  # □□□□□□□□□□□□□□□□
            # □□□□□ - “1” □□□□□□□□
        ]
    }]
})

# □□□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_North_America",
        "Prefixes": [
            "1"  # □□ + □□□
        ]
    }]
})
```

□□□ □□□□ `DestinationIDs: "Dest_Domestic_All"` □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□“1”□□

## □□□□□□

□□□ □□□□□□□□□□□□□□/SMS/□□□□□□ □□□□□□□□□□□□□□ □□□□□□□□□□□□

□□ **1**□□□□□□□□□

```
# □□□□□□□
{
    "BalanceId": "Europe_Data_5GB",
    "BalanceType": "*data",
    "DestinationIDs": "Dest_PLMN_Zone_Europe",  # □□□□□□□□□□□□
    "Units": 5 * 1024 * 1024 * 1024
}

# □□□□□□□□mcc214.mnc001□□□
# □□□□□ Dest_PLMN_Zone_Europe □
```

□□□

- □ □□□□ □□□□□□□□□□□□□□□
- □□□□□□□□
- □□□□“□□□□”□□□□□

□□□ □□□□□□□□ `Dest_PLMN_Zone_Europe` □□□□□□□□ `DestinationIDs: "*any"` □□□□ □□□□□□

□□ **2**□□□□□□□□

```
# □□□□□□□□□
{
    "BalanceId": "UK_Voice_100min",
    "BalanceType": "*voice",
    "DestinationIDs": "Dest_International_UK",  # □□□□ "44"
    "Units": 100 * 60 * 1000000000
}
# □□□□ "*any" □□□□□□□□

# □□□□□□□□□□+61□
```

□□□

- □ □□ □□□□□□□□□□□□□□ "61"□
- □□□□□□□□□□□□□□ "44"□
- □□□□□□□□□□□□

□□□ □□□□□ `DestinationIDs: "*any"` □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□ **3**□□□□□□□□□

```
# □□□□□
# □□ 1□□□□□
{
    "BalanceId": "UK_Voice_100min",
    "BalanceType": "*voice",
    "DestinationIDs": "Dest_International_UK",
    "Units": 100 * 60 * 1000000000,
    "BalanceWeight": 1200
}

# □□ 2□□□□□□□□□
{
    "BalanceId": "PAYG_Credit",
    "BalanceType": "*monetary",
    "DestinationIDs": "*any",  # □□□□
    "Units": 5000,  # $50
    "BalanceWeight": 1000  # □□□□□
}

# □□□□□□□□□□+61□
```

□□□

- □ □□ □□□
- □□□□□□□□□□□□□□ "61"□
- PAYG □□□□□□□□□ "*any"□
- □ PAYG □□□□□□□□□□

## □□□□□

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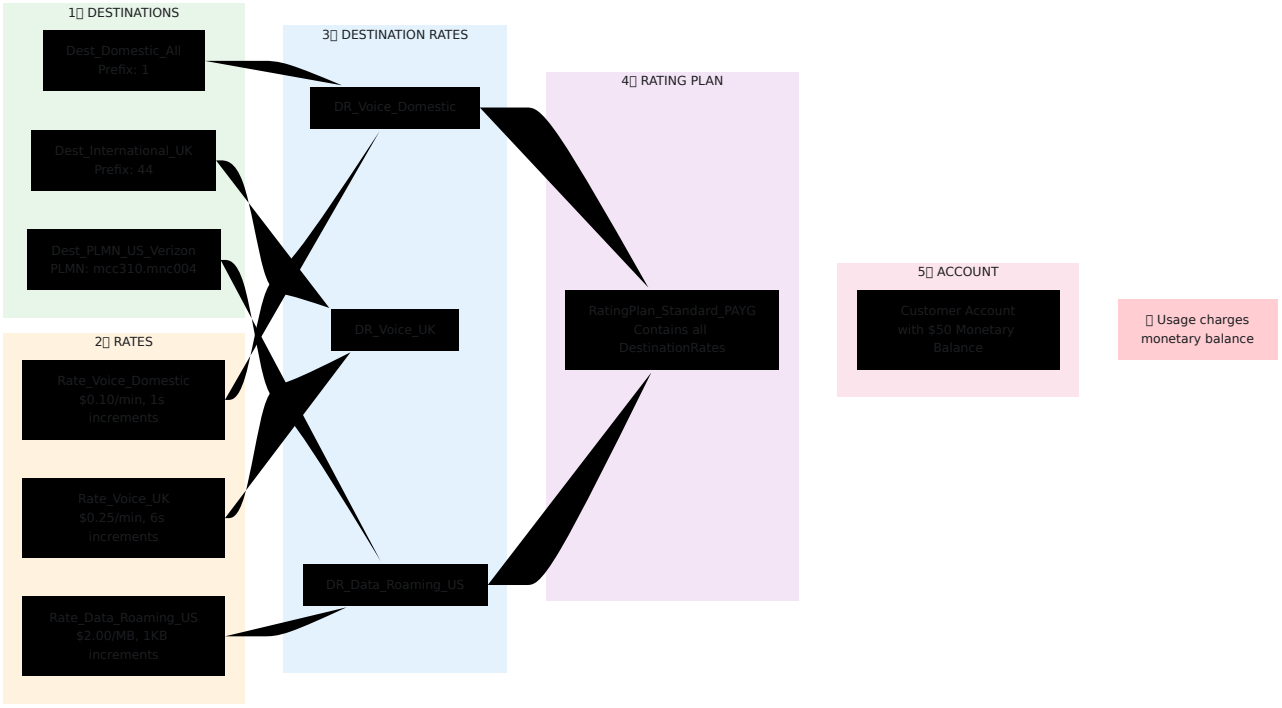
# □□□□□□□□□□□


1□ DESTINATIONS
Dest_Domestic_All
Prefix: 1
Dest_International_UK
Prefix: 44
Dest_PLMN_US_Verizon
PLMN: mcc310.mnc004
2□ RATES
Rate_Voice_Domestic
$0.10/min, 1s
increments
Rate_Voice_UK
$0.25/min, 6s
increments
Rate_Data_Roaming_US
$2.00/MB, 1KB
increments
3□ DESTINATION RATES
DR_Voice_Domestic
DR_Voice_UK
DR_Data_Roaming_US
4□ RATING PLAN
RatingPlan_Standard_PAYG
Contains all
DestinationRates
5□ ACCOUNT
Customer Account
with $50 Monetary
Balance
□ Usage charges
monetary balance

# □□□□□□□□

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```
#
# ============================================================================
# VOICE RATES (Per Minute)
#
# ============================================================================

# Domestic voice: $0.10/minute
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPRate',
    'params': [{
        "TPid": tpid,
        "ID": "Rate_Voice_Domestic",
        "RateSlots": [{
            "ConnectFee": 0,
            "Rate": 0.10,
            "RateUnit": "60s",         # 1 minute
            "RateIncrement": "1s",     # Per-second billing
            "GroupIntervalStart": "0s"
        }]
    }]
})

# UK voice: $0.25/minute
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPRate',
    'params': [{
        "TPid": tpid,
        "ID": "Rate_Voice_UK",
        "RateSlots": [{
            "ConnectFee": 0.05,        # $0.05 connection fee
            "Rate": 0.25,
            "RateUnit": "60s",
            "RateIncrement": "6s",     # 6-second blocks
            "GroupIntervalStart": "0s"
        }]
    }]
})

#
# ============================================================================
# SMS RATES (Per Message)
#
# ============================================================================
```

```
# Domestic SMS: $0.05/message
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPRate',
    'params': [{
        "TPid": tpid,
        "ID": "Rate_SMS_Domestic",
        "RateSlots": [{
            "ConnectFee": 0,
            "Rate": 0.05,
            "RateUnit": "1",          # 1 SMS
            "RateIncrement": "1",     # Per message
            "GroupIntervalStart": "0s"
        }]
    }]
})

#
# ============================================================================
# DATA RATES (Per MB) - For Roaming
#
# ============================================================================

# Roaming on US Premium Networks (Verizon, AT&T): $2.00/MB
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPRate',
    'params': [{
        "TPid": tpid,
        "ID": "Rate_Data_Roaming_US_Premium",
        "RateSlots": [{
            "ConnectFee": 0,
            "Rate": 2.00,
            "RateUnit": "1048576",    # 1 MB in bytes
            "RateIncrement": "1024",  # Per KB
            "GroupIntervalStart": "0s"
        }]
    }]
})
```

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- **ConnectFee** - □□□□□□□□□□
- **Rate** - □□ RateUnit □□□

- **RateUnit** - □□□□□□□□60s□1MB□1 □□□
- **RateIncrement** - □□□□□□
- **GroupIntervalStart** - □□□□□□□□□□

## □□□□□□□□□

□□□□□□□□□□□□□□□□□ DestinationRates□

```
# □□□□□□□□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestinationRate',
    'params': [{
        "TPid": tpid,
        "ID": "DR_Voice_Domestic",
        "DestinationRates": [{
            "DestinationId": "Dest_Domestic_All",
            "RateId": "Rate_Voice_Domestic",
            "RoundingMethod": "*up",
            "RoundingDecimals": 4
        }]
    }]
})

# □□□□□□□□□□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestinationRate',
    'params': [{
        "TPid": tpid,
        "ID": "DR_Voice_UK",
        "DestinationRates": [{
            "DestinationId": "Dest_International_UK",
            "RateId": "Rate_Voice_UK",
            "RoundingMethod": "*up",
            "RoundingDecimals": 4
        }]
    }]
})

# □ Verizon PLMN □□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestinationRate',
    'params': [{
        "TPid": tpid,
        "ID": "DR_Data_Roaming_US_Premium",
        "DestinationRates": [{
            "DestinationId": "Dest_PLMN_US_Verizon",
            "RateId": "Rate_Data_Roaming_US_Premium",
            "RoundingMethod": "*up",
            "RoundingDecimals": 4
        }]
```

```
    }]
})
```

## □□□□□□

□□□ DestinationRates □□□□□□□□□□

```
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPRatingPlan',
    'params': [{
        "TPid": tpid,
        "ID": "RatingPlan_Standard_PAYG",
        "RatingPlanBindings": [
            # □□□□□□□□□□ = □□□□
            {"DestinationRatesId": "DR_Voice_UK", "TimingId":
"*any", "Weight": 40},
            {"DestinationRatesId": "DR_Voice_Domestic",
"TimingId": "*any", "Weight": 20},

            # SMS □□
            {"DestinationRatesId": "DR_SMS_Domestic", "TimingId":
"*any", "Weight": 20},

            # □□□□□□
            {"DestinationRatesId": "DR_Data_Roaming_US_Premium",
"TimingId": "*any", "Weight": 50}
        ]
    }]
})
```

## □□□□□□

□□□□□□□□□□□ CGRateS □□

```
# □□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV1.LoadTariffPlanFromStorDb',
    'params': [{
        "TPid": tpid,
        "DryRun": False,
        "Validate": True
    }]
})

# □□□□□□□
OCS_Obj.SendData({
    'method': 'CacheSv1.ReloadCache',
    'params': [{
        "Tenant": tenant,
        "DestinationIDs": ["*all"]
    }]
})
```

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- CGRateS □□□□□□□□ - □□□□□□□□□□□□□□□

# □□□□

## 1. □□□□□□□□□□

```
# □ - □□□□□□□
"DestinationIDs": "Dest_PLMN_OnNet",  # mcc505.mnc057

# □ - □□□□□□□□□□□
"DestinationIDs": "Dest_PLMN_AU_All",  # mcc505□□□ AU □□□□
```

## 2. □□□□□□□□□□□□

```
# □ - □□□□
Dest_PLMN_US_Verizon
Dest_International_UK
Dest_PLMN_Zone_Europe

# □ - □□□
Dest_Data_1
Dest_Voice_Package
```

## 3. □□□□□□□□□

```
# □ - □□□□
Dest_Domestic_All
Dest_Domestic_TollFree
Dest_Domestic_Premium

# □ - □□□□
Dest_Area_Code_212
Dest_Area_Code_213
Dest_Area_Code_214
```

## 4. □□ PLMN □□

□□ PLMN □□□□□□□□□□□□ MCC/MNC □□□□□□

```
# Verizon Wireless
# □□□https://www.mcc-mnc.com/□□□□□ 2024-12□
OCS_Obj.SendData({
    'method': 'ApierV2.SetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_US_Verizon",
        "Prefixes": [
            "mcc310.mnc004",  # Verizon - Nationwide
            "mcc310.mnc010",  # Verizon - East
            ...
        ]
    }]
})
```

# □□□□

## □□□□□□□□□□□□

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```
# 1. □□□□□□□□□□
OCS_Obj.SendData({
    'method': 'ApierV2.GetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_US_Verizon"
    }]
})

# 2. □□□□□ DestinationIDs □□
# □□□□□□□□□□ "*any"

# 3. □□ PLMN□□□□□□□□□□□□□□□
# □□□□ CCR □□□□ Visited-PLMN-Id AVP
```

# □□□□□□□□□□□□

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□□□ □□□ PLMN □□ `Dest_PLMN_OnNet` □□□

□□□□□

```
# □□□□□□□□ PLMN□□□□□ CCR□
# □□□□□□□□□□ PLMN□

OCS_Obj.SendData({
    'method': 'ApierV2.GetTPDestination',
    'params': [{
        "TPid": tpid,
        "ID": "Dest_PLMN_OnNet"
    }]
})
# □□□□□□□□□□□□□□ PLMN
# □□□["mcc505.mnc057"] □□□□□□ SIM □□□□
```

# □□□□□□□□□□□□

□□□ □□□“□□□□”□□□□□

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1. □□□□□□□□□□□□□□□□□□□□□□□□□□□□
   - □□ +44-20-xxxx → □□□□□□□□ "44"
2. □□□ **DestinationIDs**□□□□□□□□□□□□
   - □□□□□□□□ `"DestinationIDs": "Dest_International_UK"` □ `"Dest_International_All"`
3. □□□□□□□□ `ExpiryTime`
4. □□□□□□□□ `Units > 0`

# □□□□

- CGRateS □□□□□□□ - □□□□□□□□□□□□□□□□□□□□□□□□□□□□

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# Ansible Playbooks: □□□□

OmniCRM □□□□ **Ansible** □□□□

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- □□ IPTV □□□□□□□
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- □□□ CPE □□□ playbook
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## □□□□□□ Playbook □□

```
# □□ 1□□□ SIM □□□□□ 1 □□□□
# provisioning_play: play_simple_service
- □ CRM □□□□□□□
- □ OCS □□□□□□□
- □□ SIM □□□□□□□□
- □□□□□□□□

# □□ 2□□□□□□□□□□□ 3 □□□□
# provisioning_play: play_bundle_internet_tv_voice
- □□□□□□□□□
- □□ IPTV □□□□
- □□ VoIP □□□□
- □□□□□□□□□□□
- □□□□□□□□□□□□

# □□ 3□□□□□□□□ 0 □□□□
# provisioning_play: play_topup_no_charge
- □□ service_id □□□□□□
- □□□ OCS □□□□□□□□
- □□□□□□□□
- □□□□□□

# □□ 4□CPE □□□□□ 0 □□□□
# provisioning_play: play_prov_cpe_mikrotik
- □□□□□□□
- □□□□□□□□□
- □□□□□□□□□□□□□□□
- □□□□□□□□□□□□
```

□□□□**Playbook** □□□□□□□□□□□□□□□□□□

# Plays □ Tasks

□□ Plays □ Tasks □□□□□□□□ OmniCRM playbooks □□□□□

**Play**□Playbook□
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□Play □□□□ `OmniCRM-API/Provisioners/plays/` □□
□□ playbooks□□□□□□□□□□□

□□□

- `play_simple_service.yaml` - □□□□□□□
- `play_topup_no_charge.yaml` - □□□□□□□□□□
- `play_prov_cpe_mikrotik.yaml` - □□□□□□□□□

**Task□□□□□□□□**
□□□□□□□□□

```yaml
# play_simple_service.yaml (□□ Play)
- name: □□□□ Play
  hosts: localhost
  tasks:
    - name: □□□□□
      block:
        - name: □□□□
          uri: ...

        - name: □□□□
          uri: ...

        # □□□□□□□
        - include_tasks: task_welcome_email.yaml

        # □□□□□□□
        - include_tasks: post_provisioning_tasks.yaml
```

# Playbook □□□□

□□ OmniCRM playbooks □□□□□□□□□□□□□□□□□□□□□□ playbooks □□□□□

## □□□

□□ playbook □□□□□□□□□□

```yaml
- name: Playbook □□□□□□
  hosts: localhost           # OmniCRM □□□ localhost
  gather_facts: no           # □□□□□□
  become: False              # □□□□□

  tasks:
    - name: □□
      block:
        # □□□□□□□

      rescue:
        # □□/□□□□□□□
```

## □□□□

**name**
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `playbook_description`□

**hosts: localhost**
□□ OmniCRM playbooks □ localhost □□□□□□□□□□ API □□□□□□□□□□□□□□ SSH□

**gather_facts: no**
Ansible □□□□□□□□□□□□□

- □□□□□□□□□□
- □□□□□□□□□□
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**become: False**
□□□□□□□□ API □□□□□□□□□□□□□□□□□□□□□□□□□□

## □□□□

□□ playbook □□□□□□□□□□□□

```
tasks:
  - name: □□ crm_config □□□
    ansible.builtin.include_vars:
      file: "../../crm_config.yaml"
      name: crm_config
```

□□□□□□□□□ `crm_config.ocs.cgrates`□`crm_config.crm.base_url` □□

`crm_config.yaml` □□□□□

```
ocs:
  cgrates: "10.0.1.100:2080"
  ocsTenant: "default_tenant"
crm:
  base_url: "https://crm.example.com"
```

# □□□□□□

□□□□□□□□□□□□

□□□□□□□

```
- name: □□ OmniCRM □□□ product_id
  debug:
    msg: "□□□□ {{ product_id }}"
```

□□□□□□□

```
- name: □□ SIM □□□□ ID
  set_fact:
    sim_card_id: "{{ hostvars[inventory_hostname]['SIM Card'] |
int }}"
  when: "'SIM Card' in hostvars[inventory_hostname]"
```

□□ **API** □□□

```
- name: □ CRM API □□□□□□
  uri:
    url: "http://localhost:5000/crm/product/product_id/{{
product_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: api_response_product

- name: □□□□□□
  debug:
    msg: "□□□□□ {{ api_response_product.json.product_name }}"
```

# □□ Playbook □□

## □□□□□□

□□□□□□□□□□□□□□□

```yaml
- name: □□□□ Playbook
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: □□□
      block:

      # 1. □□□□
      - name: □□ crm_config □□□
        ansible.builtin.include_vars:
          file: "../../crm_config.yaml"
          name: crm_config

      # 2. □□□□□□
      - name: □ CRM API □□□□□□
        uri:
          url: "http://localhost:5000/crm/product/product_id/{{
product_id }}"
          method: GET
          headers:
            Authorization: "Bearer {{ access_token }}"
          return_content: yes
          validate_certs: no
        register: api_response_product

      # 3. □□□□□□
      - name: □ CRM API □□□□□□
        uri:
          url: "http://localhost:5000/crm/customer/customer_id/{{
customer_id }}"
          method: GET
          headers:
            Authorization: "Bearer {{ access_token }}"
          return_content: yes
        register: api_response_customer

      # 4. □□□□□□□□□□
      - name: □□□□□□
        set_fact:
          package_name: "{{ api_response_product.json.product_name
}}"
```

```
          package_comment: "{{ api_response_product.json.comment
}}"
          setup_cost: "{{
api_response_product.json.retail_setup_cost }}"
          monthly_cost: "{{ api_response_product.json.retail_cost
}}"

      # 5. □□□□□□□□
      - name: □□ UUID
        set_fact:
          uuid: "{{ 99999999 | random | to_uuid }}"

      - name: □□□□ UUID
        set_fact:
          service_uuid: "Service_{{ uuid[0:8] }}"

      # 6. □□□□□□□□□□□
      - name: □ OCS/CGRateS □□□□□
        uri:
          url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
          method: POST
          body_format: json
          headers:
            Content-Type: "application/json"
          body:
            {
              "method": "ApierV2.SetAccount",
              "params": [{
                  "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                  "Account": "{{ service_uuid }}",
                  "ActionPlanIds": [],
                  "ActionPlansOverwrite": true,
                  "ExtraOptions": {
                    "AllowNegative": false,
                    "Disabled": false
                  },
                  "ReloadScheduler": true
              }]
            }
          status_code: 200
        register: ocs_response

      - name: □□ OCS □□□□
        assert:
```

```
      that:
        - ocs_response.status == 200
        - ocs_response.json.result == "OK"

    # 7. □□□□□□
    - name: □□ 0 □□□□
      uri:
        url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
        method: POST
        body_format: json
        body:
          {
            "method": "ApierV1.AddBalance",
            "params": [{
                "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                "Account": "{{ service_uuid }}",
                "BalanceType": "*monetary",
                "Categories": "*any",
                "Balance": {
                    "ID": "□□□□",
                    "Value": 0,
                    "ExpiryTime": "+4320h",
                    "Weight": 1,
                    "Blocker": true
                }
            }]
          }
        status_code: 200
      register: balance_response

    # 8. □ CRM □□□□□□□
    - name: □□□□□□□□□□□ISO 8601 □□□
      command: date --utc +%Y-%m-%dT%H:%M:%S%z
      register: current_date_time

    - name: □□ API □□□□
      uri:
        url: "http://localhost:5000/crm/service/"
        method: PUT
        body_format: json
        headers:
          Content-Type: "application/json"
          Authorization: "Bearer {{ access_token }}"
        body:
```

```
            {
              "customer_id": "{{ customer_id }}",
              "product_id": "{{ product_id }}",
              "service_name": "{{ package_name }} - {{
service_uuid }}",
              "service_type": "generic",
              "service_uuid": "{{ service_uuid }}",
              "service_billed": true,
              "service_taxable": true,
              "service_provisioned_date": "{{
current_date_time.stdout }}",
              "service_status": "Active",
              "wholesale_cost": "{{
api_response_product.json.wholesale_cost | float }}",
              "retail_cost": "{{ monthly_cost | float }}"
            }
          status_code: 200
        register: service_creation_response

      # 9. □□□□□□□□□
      - name: □□ API □□□□□□□□□
        uri:
          url: "http://localhost:5000/crm/transaction/"
          method: PUT
          headers:
            Content-Type: "application/json"
            Authorization: "Bearer {{ access_token }}"
          body_format: json
          body:
            {
              "customer_id": {{ customer_id | int }},
              "service_id": {{
service_creation_response.json.service_id | int }},
              "title": "{{ package_name }} - □□□□",
              "description": "□ {{ package_comment }} □□□□□",
              "invoice_id": null,
              "retail_cost": "{{ setup_cost | float }}"
            }
          return_content: yes
        register: transaction_response

      # 10. □□□□□□□
      - include_tasks: post_provisioning_tasks.yaml
```

```
    rescue:

    # □□/□□□□
    - name: □□□□□□□□□□□□
      debug:
        var: hostvars[inventory_hostname]

    - name: □ OCS □□□□□
      uri:
        url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
        method: POST
        body_format: json
        body:
          {
            "method": "ApierV2.RemoveAccount",
            "params": [{
                "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                "Account": "{{ service_uuid }}",
                "ReloadScheduler": true
            }]
          }
        status_code: 200
      ignore_errors: True
      when: service_uuid is defined

    - name: □□□□□□□□□□ CRM □□□□□
      uri:
        url: "http://localhost:5000/crm/service/service_id/{{
service_creation_response.json.service_id }}"
        method: DELETE
        headers:
          Authorization: "Bearer {{ access_token }}"
        status_code: 200
      ignore_errors: True
      when: service_creation_response is defined

    - name: □□□□□□□□□□□□□□□
      assert:
        that:
          - action == "deprovision"
```

# □□/□□□□

□□□□□□□□□□□□□□□□□□□□

```yaml
- name: □□□□ Playbook
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: □□ crm_config □□□
      ansible.builtin.include_vars:
        file: "../../crm_config.yaml"
        name: crm_config

    # 1. □□□□□□
    - name: □ CRM API □□□□□□
      uri:
        url: "http://localhost:5000/crm/service/service_id/{{
service_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
      register: api_response_service

    # 2. □□□□□□□□□□□□□□
    - name: □ CRM API □□□□□□
      uri:
        url: "http://localhost:5000/crm/product/product_id/{{
product_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
      register: api_response_product

    # 3. □□□□□□□□
    - name: □□□□□□
      set_fact:
        service_uuid: "{{ api_response_service.json.service_uuid
}}"
        customer_id: "{{ api_response_service.json.customer_id }}"
        package_name: "{{ api_response_product.json.product_name
}}"
        topup_value: "{{ api_response_product.json.retail_cost }}"
```

```yaml
    # 4. □□□□□□□□□□□□□□□□□□
    - name: □□□□□□□□□□
      uri:
        url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
        method: POST
        body_format: json
        body:
          {
            "method": "APIerSv1.ExecuteAction",
            "params": [{
                "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                "Account": "{{ service_uuid }}",
                "ActionsId": "Action_Topup_Standard"
            }]
          }
        status_code: 200
      register: action_response

    - name: □□□□□□□□□
      assert:
        that:
          - action_response.status == 200
          - action_response.json.result == "OK"

    # 5. □□□□□□□□□□
    - name: □□ ActionTriggers
      uri:
        url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
        method: POST
        body_format: json
        body:
          {
            "method": "APIerSv1.ResetAccountActionTriggers",
            "params": [{
                "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                "Account": "{{ service_uuid }}",
                "Executed": false
            }]
          }
        status_code: 200

    # 6. □□□□□□
    - name: □□□□□□□□□
      command: "date --utc +%Y-%m-%dT%H:%M:%S%z -d '+30 days'"
```

```
      register: new_expiry_date

    - name: □□□□□□□□□□□□
      uri:
        url: "http://localhost:5000/crm/service/{{ service_id }}"
        method: PATCH
        headers:
          Authorization: "Bearer {{ access_token }}"
          Content-Type: "application/json"
        body_format: json
        body:
          {
            "service_deactivate_date": "{{ new_expiry_date.stdout
}}",
            "service_status": "Active"
          }

    # 7. □□□□□□□□
    - name: □□□□□□□
      uri:
        url: "http://sms-gateway/api/send"
        method: POST
        body_format: json
        body:
          {
            "source": "□□□□",
            "destination": "{{ customer_phone }}",
            "message": "□□□□□□□□□□□□□□□□{{ new_expiry_date.stdout
}}"
          }
        status_code: 201
      ignore_errors: True
```

## CPE □□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□ONT□□

```yaml
- name: CPE □□ Playbook
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: □□ crm_config □□□
      ansible.builtin.include_vars:
        file: "../../crm_config.yaml"
        name: crm_config

    # 1. □□ CPE □□□□
    - name: □ hostvars □□ CPE □□ ID
      set_fact:
        cpe_inventory_id: "{{ hostvars[inventory_hostname]['WiFi
Router CPE'] | int }}"
      when: "'WiFi Router CPE' in hostvars[inventory_hostname]"

    # 2. □□□□□ CPE □□□□
    - name: □□□□□ CPE □□
      uri:
        url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ cpe_inventory_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
      register: api_response_cpe

    # 3. □□□□□□□□
    - name: □ API □□□□□□
      uri:
        url: "{{ crm_config.crm.base_url
}}/crm/site/customer_id/{{ customer_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
      register: api_response_site

    # 4. □□□□□□ CPE □□
    - name: □□□□□ CPE □□□□
      uri:
```

```
        url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ cpe_inventory_id }}"
        method: PATCH
        body_format: json
        headers:
          Authorization: "Bearer {{ access_token }}"
        body:
          {
            "address_line_1": "{{
api_response_site.json.0.address_line_1 }}",
            "city": "{{ api_response_site.json.0.city }}",
            "state": "{{ api_response_site.json.0.state }}",
            "latitude": "{{ api_response_site.json.0.latitude }}",
            "longitude": "{{ api_response_site.json.0.longitude
}}"
          }
        status_code: 200

    # 5. □□□□
    - name: □□ CPE □□□
      set_fact:
        cpe_hostname: "CPE_{{ cpe_inventory_id }}"
        cpe_username: "admin_{{ cpe_inventory_id }}"

    - name: □□□□□□
      set_fact:
        cpe_password: "{{ lookup('pipe', 'cat /dev/urandom | tr -
dc a-zA-Z0-9 | head -c 16') }}"

    # 6. □□ WiFi □□
    - name: □□ WiFi SSID
      set_fact:
        wifi_ssid: "Network_{{ cpe_inventory_id }}"

    - name: □□ WiFi □□
      set_fact:
        word_list:
          - apple
          - cloud
          - river
          - mountain
          - ocean

    - name: □□ WiFi PSK
```

```
      set_fact:
        random_word: "{{ word_list | random }}"
        random_number: "{{ 99999 | random(start=10000) }}"

    - name: □□ WiFi PSK
      set_fact:
        wifi_psk: "{{ random_word }}{{ random_number }}"

    # 7. □□□□□□
    - name: □□□□□□□□
      set_fact:
        config_name: "{{ cpe_hostname }}_{{ lookup('pipe', 'date
+%Y%m%d%H%M%S') }}.cfg"
        config_dest: "/tmp/{{ cpe_hostname }}_{{ lookup('pipe',
'date +%Y%m%d%H%M%S') }}.cfg"

    - name: □□□□□□□□
      template:
        src: "templates/cpe_router_config.j2"
        dest: "{{ config_dest }}"

    # 8. □□□□□□□□
    - name: □□□□□□
      ansible.builtin.slurp:
        src: "{{ config_dest }}"
      register: config_content

    # 9. □□□□□□□□
    - name: □□□□□ CPE □□
      uri:
        url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ cpe_inventory_id }}"
        method: PATCH
        body_format: json
        headers:
          Authorization: "Bearer {{ access_token }}"
        body:
          {
            "itemtext3": "{{ wifi_ssid }}",
            "itemtext4": "{{ wifi_psk }}",
            "management_url": "{{ cpe_hostname }}",
            "management_username": "{{ cpe_username }}",
            "management_password": "{{ cpe_password }}",
            "config_content": "{{ config_content.content |
```

```
b64decode }}",
            "inventory_notes": "□□□□{{ lookup('pipe', 'date +%Y-
%m-%d') }}"
          }
        status_code: 200

    # 10. □□□□□□□□□□□
    - name: □□□□□□□□□□□□□□□□
      uri:
        url: "https://api.mailjet.com/v3.1/send"
        method: POST
        body_format: json
        headers:
          Content-Type: "application/json"
        body:
          {
            "Messages": [{
              "From": {
                "Email": "provisioning@example.com",
                "Name": "□□□□"
              },
              "To": [{
                "Email": "support@example.com",
                "Name": "□□□□"
              }],
              "Subject": "CPE □□ - {{ cpe_hostname }}",
              "Attachments": [{
                "ContentType": "text/plain",
                "Filename": "{{ config_name }}",
                "Base64Content": "{{ config_content.content }}"
              }]
            }]
          }
        user: "{{ mailjet_api_key }}"
        password: "{{ mailjet_api_secret }}"
        force_basic_auth: true
        status_code: 200
```

## □□□□□□

□□ CGRateS ActionPlans □□□□□□□□□□□□

```
# □□ playbook □□□□□□□□□□□□

# 1. □□□ auto_renew □□
- name: □□□ auto_renew □□□□
  set_fact:
    auto_renew_bool: "{{ (auto_renew | string | lower) in ['true',
'1', 'yes'] }}"

# 2. □□□□□□□□□
- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActions",
        "params": [{
          "ActionsId": "Action_AutoTopup_{{ service_uuid }}_{{
product_id }}",
          "Overwrite": true,
          "Actions": [
            {
              "Identifier": "*http_post",
              "ExtraParameters": "{{ crm_config.crm.base_url
}}/crm/provision/simple_provision_addon/service_id/{{ service_id
}}/product_id/{{ product_id }}"
            },
            {
              "Identifier": "*cdrlog",
              "BalanceType": "*generic",
              "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"□□□□\"}"
            }
          ]
        }]
      }
    status_code: 200
  register: action_response
  when: auto_renew_bool

# 3. □□□□ ActionPlan
- name: □□□□□□□ ActionPlan
```

```
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.SetActionPlan",
        "params": [{
          "Id": "ActionPlan_Monthly_{{ service_uuid }}_{{
product_id }}",
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "ActionPlan": [{
            "ActionsId": "Action_AutoTopup_{{ service_uuid }}_{{
product_id }}",
            "Years": "*any",
            "Months": "*any",
            "MonthDays": "*any",
            "WeekDays": "*any",
            "Time": "*monthly",
            "StartTime": "*now",
            "Weight": 10
          }],
          "Overwrite": true,
          "ReloadScheduler": true
        }]
      }
    status_code: 200
  when: auto_renew_bool

# 4. □ ActionPlan □□□□□
- name: □ ActionPlan □□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV2.SetAccount",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "ActionPlanIds": ["ActionPlan_Monthly_{{ service_uuid
}}_{{ product_id }}"],
          "ActionPlansOverwrite": true,
```

```
            "ReloadScheduler": true
          }]
        }
      status_code: 200
  when: auto_renew_bool

# 5. □□□□□□□□□□□□□ ActionPlan
- name: □□□□□□ ActionPlan
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.RemoveActionPlan",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Id": "ActionPlan_Monthly_{{ service_uuid }}_{{
product_id }}"
        }]
      }
    status_code: 200
  ignore_errors: true
  when: not auto_renew_bool
```

# □□□□

□□□□□□□□□□□□□□□ playbooks□□□□□□ plays □□□□□□□□□□□□□□□□□

## □□□□□□□□

`task_welcome_email.yaml` - □□□□□□□□□□□□□□

```
# □□□□□□□□□□□□□ play □□□
# - api_response_customer□□□□□□□□□
# - package_name□□□□□□
# - monthly_cost□□□□□□
# - setup_cost□□□□□□□

- name: □□□□□□□□□
  set_fact:
    mailjet_api_key: "{{ lookup('env', 'MAILJET_API_KEY') }}"
    mailjet_api_secret: "{{ lookup('env', 'MAILJET_SECRET') }}"
    email_from: "noreply@example.com"
    recipients: []

- name: □□□□□□□□□□□□□□□□
  set_fact:
    email_subject: "□□□□□□□□□□□"
    email_from_name: "□□□□□□□"

- name: □□□□□□□□□□□□□□□
  loop: "{{ api_response_customer.json.contacts }}"
  set_fact:
    recipients: "{{ recipients + [{'Email': item.contact_email,
'Name': item.contact_firstname ~ ' ' ~ item.contact_lastname}] }}"

- name: □□□□□□□□□□□□
  set_fact:
    first_contact: "{{
api_response_customer.json.contacts[0].contact_firstname }}"

- name: □□□□□□□□□
  uri:
    url: "https://api.mailjet.com/v3.1/send"
    method: POST
    body_format: json
    headers:
      Content-Type: "application/json"
    body:
      {
        "Messages": [{
          "From": {
            "Email": "{{ email_from }}",
            "Name": "{{ email_from_name }}"
          },
```

```
          "To": "{{ recipients }}",
          "Subject": "{{ email_subject }}",
          "TextPart": "□□□ {{ first_contact }}□□□□□□□□□□□□□□□□□",
          "HTMLPart": "□□□ {{ first_contact }}□<br/><h3>□□□</h3>
<br/>□□ {{ package_name }} □□□□□□□□<br/>□□□□□□${{ monthly_cost }}
<br/>□□□□□□${{ setup_cost }}<br/>□□□□□□□□□□□ support@example.com"
        }]
      }
    user: "{{ mailjet_api_key }}"
    password: "{{ mailjet_api_secret }}"
    force_basic_auth: true
    status_code: 200
  register: email_response
```

## □□□□□

`post_provisioning_tasks.yaml` - □□□□□□□□□□□□□□□□□□□□

```
# □□□□□□□□□□ playbooks □□□□□
# □□□□□□□□□□□□

- include_tasks: task_notify_ocs.yaml
```

`task_notify_ocs.yaml` □□□□□

```
- name: □□ OCS □□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "APIerSv1.ReloadCache",
        "params": [{
          "ArgsCache": "*all"
        }]
      }
    status_code: 200
  ignore_errors: true
```

# □□□□

## □□□□□

□□□□□□□□□□

```
- name: □□ SIM □□□ ID
  set_fact:
    sim_inventory_id: "{{ hostvars[inventory_hostname]['SIM Card']
| int }}"
  when: "'SIM Card' in hostvars[inventory_hostname]"

- name: □□ SIM □□□□□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ sim_inventory_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: sim_response

- name: □□ SIM □□□□
  set_fact:
    iccid: "{{ sim_response.json.iccid }}"
    imsi: "{{ sim_response.json.imsi }}"
    ki: "{{ sim_response.json.ki }}"
```

□□□□□□□□□□

```
- name: □ SIM □□□□□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ sim_inventory_id }}"
    method: PATCH
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "customer_id": {{ customer_id }},
        "service_id": {{ service_id }},
        "item_state": "Assigned"
      }
    status_code: 200
```

## □□□□□□□

□□□□□□/□□□

```
- name: □□□□□□□□□□□ISO 8601 □□□
  command: date --utc +%Y-%m-%dT%H:%M:%S%z
  register: current_date_time

- name: □□□□□□□□□
  set_fact:
    today: "{{ lookup('pipe', 'date +%Y-%m-%d') }}"
```

□□□□□□□

```
- name: □□ 30 □□□□□□□
  command: "date --utc +%Y-%m-%dT%H:%M:%S%z -d '+30 days'"
  register: expiry_date

- name: □□□□ 90 □□□□
  command: "date --utc +%Y-%m-%d -d '+{{ days }} days'"
  register: future_date
  vars:
    days: 90
```

# □□□□□

UUID □□□□□

```
- name: □□ UUID
  set_fact:
    uuid: "{{ 99999999 | random | to_uuid }}"

- name: □□□□□□□□
  set_fact:
    service_uuid: "SVC_{{ uuid[0:8] }}"
```

□□□□□

```
- name: □□□□□□
  set_fact:
    password: "{{ lookup('pipe', 'cat /dev/urandom | tr -dc a-zA-
Z0-9 | head -c 16') }}"
```

□□□□□□□□□

```
- name: □□□□□□
  set_fact:
    words:
      - alpha
      - bravo
      - charlie
      - delta
      - echo

- name: □□□□□□
  set_fact:
    word: "{{ words | random }}"
    number: "{{ 99999 | random(start=10000) }}"

- name: □□□□□□□
  set_fact:
    passphrase: "{{ word }}{{ number }}"
```

# □ CGRateS/OCS □□

□□□□□

```
- name: □□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV2.SetAccount",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "ActionPlanIds": [],
          "ActionPlansOverwrite": true,
          "ExtraOptions": {
            "AllowNegative": false,
            "Disabled": false
          },
          "ReloadScheduler": true
        }]
      }
    status_code: 200
  register: account_response
```

□□□□□

```
- name: □□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Categories": "*any",
          "Balance": {
            "ID": "□□□",
            "Value": 10737418240,
            "ExpiryTime": "+720h",
            "Weight": 10
          }
        }]
      }
    status_code: 200
```

□□□□□

```
- name: □□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "APIerSv1.ExecuteAction",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "ActionsId": "Action_Standard_Charge"
        }]
      }
    status_code: 200
```

□□□□□□□□

```
- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV2.GetAccount",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}"
        }]
      }
    status_code: 200
  register: account_info
```

□□□□□□□□□□

```
- name: □□□□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "APIerSv1.GetAttributeProfile",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "ID": "ATTR_{{ service_uuid }}"
        }]
      }
    return_content: yes
    status_code: 200
  register: attr_response
  ignore_errors: true

- name: □□□□□
  set_fact:
    phone_number: "{{ attr_response.json.result.Attributes |
json_query(\"[?Path=='*req.PhoneNumber'].Value[0].Rules\") | first
}}"
  when: attr_response is defined
```

## □□□□

□□□□□□□□□

```
- name: □□□□□□□□□□
  set_fact:
    monthly_cost: "{{ custom_cost | default(50.00) }}"

- name: □□□□□□□□□
  debug:
    msg: "□□ UUID □ {{ service_uuid }}"
  when: service_uuid is defined
```

□□□□□

```
- name: □□□□
  include_tasks: configure_cpe.yaml
  when: provision_cpe | default(false) | bool

- name: □□□□□□□□□
  assert:
    that:
      - action != "deprovision"
  when: action is defined
```

□□□□□

```
- name: □□□□□□
  uri:
    url: "{{ endpoint }}"
    method: POST
  when:
    - service_uuid is defined
    - customer_id is defined
    - action != "deprovision"
    - enable_feature | default(true) | bool
```

# □□□□□

□□□□□

```
- name: □□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Account": "{{ service_uuid }}",
          "BalanceType": "{{ item.type }}",
          "Balance": {
            "Value": "{{ item.value }}"
          }
        }]
      }
  loop:
    - { type: "*voice", value: 3600 }
    - { type: "*data", value: 10737418240 }
    - { type: "*sms", value: 100 }
```

□□ API □□□

```
- name: □□□□□□□□□
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/site/customer_id/{{
customer_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: sites_response

- name: □□□□□□□□□□
  debug:
    msg: "□ {{ item.address_line_1 }} □□□□"
  loop: "{{ sites_response.json }}"
```

# □□□□

□□ ignore_errors□

```
- name: □□□ SMS □□
  uri:
    url: "http://sms-gateway/send"
    method: POST
    body: {...}
  ignore_errors: true
```

□□□

```
- name: □□ API □□
  assert:
    that:
      - response.status == 200
      - response.json.result == "OK"
```

□□□□□□□

```
- name: □□□□□□□□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/service/service_uuid/{{ service_uuid }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: service_lookup
  failed_when: false

- name: □□□□□□□□□□
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/service/"
    method: PUT
    body: {...}
  when: service_lookup.status == 404
```

# □□□□

## □□□□

□□□□□□□□□□□□□□

```
# □
service_uuid: "SVC_12345"
customer_name: "John Smith"
monthly_cost: 49.99

# □
svc: "SVC_12345"
name: "John Smith"
cost: 49.99
```

□□□□□□□□□

```
api_response_customer: {...}
api_response_product: {...}
cgr_account_info: {...}
```

## □□

□□□□□□□□□□□□□□

```
- name: □□□□□□□
  debug:
    var: hostvars[inventory_hostname]

- name: □□□□□□□
  debug:
    msg: "□□ UUID: {{ service_uuid }}"

- name: □□ API □□
  debug:
    var: api_response_product.json
```

## □□

□□□□□□□ API □□□

```
- name: □□□□□
  uri:
    url: "{{ billing_endpoint }}"
    method: POST
    body: {...}
  register: response

- name: □□□□□□□
  assert:
    that:
      - response.status == 200
      - response.json.result == "OK"
    fail_msg: "□□□□□□□□{{ response.json }}"
```

## □□□

□□□□□□□□□□□□□□□

```
# □□□□□□□□□□□
- name: □□□□□□□□□
  uri:
    url: "{{ ocs_endpoint }}/get_account"
    method: POST
    body: {"Account": "{{ service_uuid }}"}
  register: account_check
  failed_when: false

# □□□□□□□□□
- name: □□□□□
  uri:
    url: "{{ ocs_endpoint }}/create_account"
    method: POST
    body: {...}
  when: account_check.status == 404
```

## □□□

□□□□□□□□□□

```
# □
mailjet_api_key: "abc123def456"

# □ - □□□□□□□
mailjet_api_key: "{{ lookup('env', 'MAILJET_API_KEY') }}"

# □ - □□□□□□□
mailjet_api_key: "{{ crm_config.email.api_key }}"
```

□□□□ HTTPS □□□□□□

```
- name: □□□□ API
  uri:
    url: "https://api.example.com/endpoint"
    method: POST
    headers:
      Authorization: "Bearer {{ access_token }}"
    validate_certs: yes
```

## □□

□□□□□□□

```
# □□□□□□□□□□□□□□□
# □□□□□□ 15 □□□□□□□□□□ 1 □□
# □□□□□□□□□□ 50% □□□□□
- name: □□□□□□□□□□
  command: "date -d 'last day of this month' +%d"
  register: days_in_month

- name: □□□□□□
  command: "date +%d"
  register: current_day

- name: □□□□□□□□
  set_fact:
    days_remaining: "{{ (days_in_month.stdout | int) -
(current_day.stdout | int) }}"
    pro_rata_cost: "{{ (monthly_cost | float) * (days_remaining |
float) / (days_in_month.stdout | float) }}"
```

# □□ Playbooks

## □□□□

1. □□□□□□□□□□□□□□□□□□□□□
2. □□□□□□□□□□□□□□□□□□□□□□□□□□□
3. □□□□□□□□□□□□□□ API □□
4. □□□□□□□□□□□□□□□□□□□□□□□□□
5. □□□□□□□□□ `action: "deprovision"` □□□□□□□□

□□□□ playbook□

```yaml
- name: □□□□□□□
  hosts: localhost
  gather_facts: no

  tasks:
    - name: □□□□□□□
      assert:
        that:
          - product_id is defined
          - customer_id is defined
          - access_token is defined
        fail_msg: "□□□□□□□"

    - name: □□ API □□
      uri:
        url: "http://localhost:5000/crm/health"
        method: GET
      register: health_check

    - name: □□□□□□□
      assert:
        that:
          - health_check.status == 200
```

## □□□□

□□□□□□□□

```yaml
# □□ - □□□□□□□
customer_id: "{{ customer_id }}"

# □□ - □□□□□
customer_id: {{ customer_id | int }}
```

□□□□□□□□□□

```
# □□ - □□□□□□□□□
service_uuid: "{{ service_uuid }}"

# □□ - □□□□□
service_uuid: "{{ service_uuid | default('') }}"
```

□□□□□

```
# □□ - □□□□□
- name: □□□□
  uri: ...
  register: response

# □□ - □□□□
- name: □□□□
  uri: ...
  register: response

- name: □□□□
  assert:
    that:
      - response.json.result == "OK"
```

# □□□□□

□□□Omnitouch □□□□□□□□□□

1. □□□□□□□
2. □□□□□ Ansible playbooks □□□□□□□□
3. □□□□□□□□ playbooks
4. □□□□□□□

□□□□□□□□□

# Ansible □□

□□□ Ansible playbooks □□□□□□

□□□□
□□ OmniCRM □□□□□□□□□□□□□□□□

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□□□□
□ OmniCRM □□□□□

- `product_id` - □□□□□□□
- `customer_id` - □□□□□□□
- `service_id` - □□□□□□□□□□□□/□□□
- `access_token` - □□ API □□□□□ JWT

# □□□

□□□□□□□□□**Ansible Playbooks** □□□□□ `rescue` □□□□□□□□□□

- □□□□□□
- □□□□□□□□
- □□□□□□
- □□□□□□□□

## □□□□

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**1.** □□□□□□□□□□
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# □□□□□

□□ OmniCRM playbooks □□□□□□□□□□□□□□

```yaml
- name: □□□□ Playbook
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: □□□
      block:
        # □□□□□□□□□□
        - name: □□ OCS □□
          uri: ...

        - name: □□□□□□
          uri: ...
          register: service_creation_response

        - name: □□□□
          uri: ...

      rescue:
        # □□□/□□□□□□□
        - name: □□□□□□□□□□□
          debug:
            var: hostvars[inventory_hostname]

        # □□□□□□□□□□□
        - name: □ OCS □□□□□
          uri: ...

        - name: □ CRM □□□□□
          uri: ...

        - name: □□□□□□□□□□□□
          assert:
            that:
              - action == "deprovision"
```

# □□□□□□□

□□□ `play_simple_service.yaml` □□□□□□□

```
rescue:
  # 1. □□□□
  - name: □□□□□□□□□□□□□□/□□
    debug:
      var: hostvars[inventory_hostname]

  - name: □□□□□□□□
    set_fact:
      today: "{{ lookup('pipe', 'date +%Y-%m-%d') }}"

  # 2. □□□□□□□□□□□□
  - name: □□□ CRM API □□□□□□□□□□
    uri:
      url: "http://localhost:5000/crm/service/service_id/{{
service_creation_response.json.service_id }}"
      method: GET
      headers:
        Authorization: "Bearer {{ access_token }}"
      return_content: yes
    register: api_response_service
    ignore_errors: True
    when: service_creation_response is defined and
service_creation_response.json is defined and
service_creation_response.json.service_id is defined

  - name: □□ api_response_service
    debug:
      var: api_response_service
    when: api_response_service is defined

  # 3. □□□□□□ service_uuid
  - name: □□□□□□ service_uuid □□
    set_fact:
      service_uuid: "{{ api_response_service.json.service_uuid }}"
    when:
      - service_uuid is not defined
      - api_response_service is defined
      - api_response_service.json is defined

  # 4. □□ OCS □□
  - name: □ OCS □□□□□
    uri:
      url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
```

```
      method: POST
      body_format: json
      headers:
        Content-Type: "application/json"
        Authorization: "Bearer {{ access_token }}"
      body:
        {
          "method": "ApierV2.RemoveAccount",
          "params": [{
            "Tenant": "{{ crm_config.ocs.ocsTenant }}",
            "Account": "{{ service_uuid }}",
            "ReloadScheduler": true
          }]
        }
      status_code: 200
    register: response
    ignore_errors: True
    when: service_uuid is defined

  - name: □□ OCS □□□□□□□□
    debug:
      var: response
    when: response is defined

  # 5. □ CRM □□□□□□□
  - name: □□□□□□□□□□□ CRM □□□□□
    uri:
      url: "http://localhost:5000/crm/service/service_id/{{
service_creation_response.json.service_id }}"
      method: DELETE
      headers:
        Authorization: "Bearer {{ access_token }}"
      status_code: 200
    register: delete_service_response
    ignore_errors: True
    when: service_creation_response is defined and
service_creation_response.json is defined and
service_creation_response.json.service_id is defined

  - name: □□□□□□□□□□
    debug:
      var: delete_service_response
    when: delete_service_response is defined
```

```
  # 6. □□□□□□□□□□□□□
  - name: □□□□□□□□□□□□□□□□“□□”/□□□□□□□□□□□□
    assert:
      that:
        - action == "deprovision"
      fail_msg: "□□□□□□□□□"
      success_msg: "□□□□□□□□□"
```

# □□□□□□□

**ignore_errors: True**
□□□□□□□□□ `ignore_errors: True`□□□□□□□□□□□□□□□

```
- name: □ OCS □□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV2.RemoveAccount",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "ReloadScheduler": true
        }]
      }
    status_code: 200
  ignore_errors: True
  when: service_uuid is defined
```

**CRM □□□□□**

```
- name: □ CRM □□□□□
  uri:
    url: "http://localhost:5000/crm/service/service_id/{{
service_id }}"
    method: DELETE
    headers:
      Authorization: "Bearer {{ access_token }}"
    status_code: 200
  ignore_errors: True
  when: service_id is defined
```

□□□□□□□□□□

```
- name: □ SIM □□□□□□□□
  uri:
    url: "http://localhost:5000/crm/inventory/inventory_id/{{
sim_inventory_id }}"
    method: PATCH
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "customer_id": null,
        "service_id": null,
        "item_state": "Available"
      }
    status_code: 200
  ignore_errors: True
  when: sim_inventory_id is defined
```

**ActionPlans□□□□□□□**

```
- name: □□□□□□ ActionPlan
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.RemoveActionPlan",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Id": "ActionPlan_Monthly_{{ service_uuid }}_{{
product_id }}"
        }]
      }
    status_code: 200
  ignore_errors: True
```

□□□□□

```
- name: □□□□□□□
  uri:
    url: "http://localhost:5000/crm/payments/release/{{
authorization_id }}"
    method: POST
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "metadata": {
          "release_reason": "provisioning_failed"
        }
      }
    return_content: yes
  ignore_errors: True
  when: authorization_id is defined
```

## □□□□□□□□

□□□□□□□□□

1. □□□□□□□□□
2. □□□□□□ playbook□□□ `action: "deprovision"`
3. Playbook □□□□□□□
4. □□□□□□□□
5. □□□□□□□□

□□ **API** □□□

```
POST /crm/provision/run_playbook
{
  "product_id": 123,
  "customer_id": 456,
  "service_id": 789,
  "action": "deprovision"
}
```

# □□□□□□

□□ **1□OCS** □□□□□□□□□□□□

- OCS □□□□
- □□□□□□□□
- □□□□□□ OCS □□
- □□□□□□□□□□□□□□

□□ **2**□□□□□□□□□□□

- OCS □□□□
- □□□□□□□
- □□□□□□
- □□□□□□ OCS □□□□□□
- □□□□□□□□□□□□□□

□□ **3**□□□□□□□□□□□□

- OCS □□□□
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  - □□□□□□□
  - □□ OCS □□

# □□□□□□□

**1. □□□□ ignore_errors**
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**2. □□ when □□□□□□□□□□**
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```
when: service_creation_response is defined
```

**3.** □□□□□□□
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```
- name: □□□□□□□□□□□□□
  debug:
    var: hostvars[inventory_hostname]
```

**4.** □□□□□□□□□□
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- □□□□□□□□
- □□□ OCS □□□□
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**5.** □□□□□□□
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**6.** □□□□□□□□□□□□
□□□ OCS □□□□□□□ `ReloadScheduler: true` □□□ CGRateS □□□□□

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□□□□□□□ playbook □□□□

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Ansible □ **block/rescue** □□□□□□□

# OmniCRM API

OmniCRM □□□□□□□□□□□□ API □□ - □□□□ UI □□□□□□□□

□□□□□□□ OmniCRM □□□□□□□□□□□□□□□□

API □□□ RESTful API□□□□□□□□□□□□□□□□□□□□□□□□□□ JWT □□□API □□□ IP □□□□

API □□ Swagger □□□□□□□□□□□□□□□□□□□□□□□□□□□ API □□□□□□□

API □□□□□□□ URL □□□

> <https://yourcrm/crm/docs/>

# □□□□□□

OmniCRM □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

1. **JWT Bearer** □□ - □□□□□□□□□□□Web UI□□□□□□□

2. **API** □□ - □□□□□□□□□□□□□□□□□□□□
3. **IP** □□□ - □□□□□□□□□□□□□□□□□□□□□□□□

## JWT Bearer □□□□□□

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- Web UI □□□□
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□□□□□□□□□□□□ JSON □□□□ POST □□□□□□ `/crm/auth/login`□

```
{
    "email": "youruser@yourdomain.com",
    "password": "yourpassword"
}
```

API □□□□□□□□ `token` □□□ JSON □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `refresh_token`□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□ Swagger □□□□□□□□□□□ `/auth/login` □□□□□□□□□□□□□□□□□□□□□□ `Try it out` □□□

□□□□□□□□□□□□□□□□ Swagger □□□□□□“Authorize”□□□“Value”□□□□□□□□□□□□
`Bearer`□□□□“Authorize”□

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# API □□□□□□□

API □□□□□□□□□□□□□□□□□□□□

```yaml
api_keys:
  your-secure-api-key-here-minimum-32-chars:
    roles:
      - admin
    description: "Provisioning automation system"
  another-api-key-for-monitoring-system:
    roles:
      - view_customer
      - view_service
    description: "Monitoring and alerting"
```

**□□ API □□□**

□□□□ `X-API-KEY` □□□□ API □□□

```bash
curl -X GET "https://yourcrm.com/crm/customers" \
  -H "X-API-KEY: your-secure-api-key-here-minimum-32-chars"
```

**Python □□□**

```python
import requests

crm_url = 'https://yourcrm.com'
api_key = 'your-secure-api-key-here-minimum-32-chars'

headers = {
    "Content-Type": "application/json",
    "X-API-KEY": api_key
}

# □□□□
response = requests.get(crm_url + '/crm/customers',
headers=headers)
for customer in response.json()['data']:
    print(customer)
```

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- □ `description` □□□□□□□□ API □□□□□
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## IP □□□□□□□

IP □□□□□□□ IP □□□□□□□□□□□□□□□□ API□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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□□ **IP** □□□□

□□□□□ IP □□□□□ `crm_config.yaml`□

```yaml
ip_whitelist:
  - 192.168.1.100
  - 10.0.0.0/24
  - 172.16.50.10
```

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# □□ Python □□□ API □□

□□□□□□□ JWT □□□□□□□□□□□□□□□□□□□□

```python
import requests

crm_url = 'https://yourcrm.com'
session = requests.Session()

print("Provisioning data to server: " + str(crm_url))

headers = {
    "Content-Type": "application/json"
}

# □□���□□□□□
response = session.post(crm_url + '/crm/auth/login', json={
    "email": "youruser@yourdomain.com",
    "password": "yourpassword"
}, headers=headers)

print(response.status_code)
print(response.json())
assert response.status_code == 200

headers['Authorization'] = 'Bearer ' + response.json()['token']
print("Authenticated to CRM successfully")

# □□□□
response = session.get(crm_url + '/crm/customers',
headers=headers)
for customer in response.json()['data']:
    print(customer)
```

# API □□□□

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- System Architecture - □□□□□□□□□□□□
- Monitoring & Metrics - □□□□□□□□□□□ API□□□□□□□□□□
- Authentication Flows - □□□□□□□□□□□□□
- RBAC - □□□□□□□□□□□□□

# CRM □□ / □□□□□□

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## □□□□

`category` □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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- **allow_auto_renew** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□ false□

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- **terms** - □□□□□□□□□□□□□□□□□□□□

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## □□□□□□□ SIM□

```
{
  "product_id": 1,
  "product_slug": "Mobile-SIM",
  "product_name": "Mobile SIM Only",
  "category": "standalone",
  "service_type": "mobile",
  "provisioning_play": "play_psim_only",
  "provisioning_json_vars": "{\"iccid\": \"\", \"msisdn\": \"\"}",
  "inventory_items_list": "['SIM Card', 'Mobile Number']",
  "retail_cost": 0,
  "retail_setup_cost": 0,
  "wholesale_cost": 3,
  "wholesale_setup_cost": 1,
  "contract_days": 0,
  "residential": true,
  "business": true,
  "enabled": true,
  "customer_can_purchase": true,
  "icon": "fa-solid fa-sim-card",
  "features_list": "['Australian Phone Number (04xxx)', 'Fastest speeds', 'Best coverage', 'Roaming on the Mainland']",
  "terms": "Must be activated within 6 months. All credit lost if service is not used for 12 months.",
  "comment": "Physical SIM card for use with Mobile Phones"
}
```


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## □□□□□□□□□□□□


```
{
  "product_slug": "example-mobile-prepaid-mini",
  "product_name": "Example Mobile Mini Plan",
  "category": "addon",
  "service_type": "mobile",
  "provisioning_play": "play_topup_charge_then_action",
  "provisioning_json_vars": "",
  "inventory_items_list": "[]",
  "retail_cost": 30,
  "retail_setup_cost": 0,
  "wholesale_cost": 5.84,
  "contract_days": 30,
  "residential": true,
  "business": false,
  "enabled": true,
  "customer_can_purchase": true,
  "auto_renew": "prompt",
  "icon": "fa-solid fa-sim-card",
  "features_list": "['8GB of Ultra fast data', 'Unlimited Calls & Texts to Example Mobile users', '100 Minutes of Talk to Australia', '100 SMS to Australia', '30 Day Expiry']",
  "terms": "Credit expires after 30 days. Once data, voice or sms is used up, you will need to top up to continue using the service.",
  "comment": "Our smallest plan for light users"
}
```


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# □□□□□□□□□□□


```
{
  "product_slug": "Bundle-Seniors",
  "product_name": "Seniors Bundle",
  "category": "bundle",
  "service_type": "fixed",
  "provisioning_play": "play_seniors_package",
  "provisioning_json_vars": "{\"IPTV_Service_ID\":
\"SeniorBundle\"}",
  "inventory_items_list": "['Modem Router']",
  "retail_cost": 30,
  "retail_setup_cost": 0,
  "wholesale_cost": 10,
  "wholesale_setup_cost": 11,
  "contract_days": 180,
  "residential": true,
  "business": false,
  "enabled": true,
  "icon": "fa-solid fa-person-walking-with-cane",
  "features_list": "['20Mbps Download', '5Mbps Upload', 'Unlimited
Data', 'Home Voice', 'TV: Extra +£5 per month', '£60 Installation
Fee']",
  "terms": "6 Month Contract, must show senior citizen's card to
qualify",
  "comment": "20Mbps/2Mbps GPON Service + IPTV + Phone"
}
```


□□□□□□□□□ playbook □□□□□□□□□□ + IPTV + □□□□□□□□□□□□□□□□□□□□□□□□□□□□

## □□□□□□□□□□


```
{
  "product_slug": "Mobile-Topup-5",
  "product_name": "PAYG £5 Topup",
  "category": "addon",
  "service_type": "mobile",
  "provisioning_play": "play_topup_monetary",
  "provisioning_json_vars": "{\"service_id\": \"\"}",
  "inventory_items_list": "[]",
  "retail_cost": 5,
  "retail_setup_cost": 0,
  "wholesale_cost": 0,
  "contract_days": 0,
  "residential": true,
  "business": false,
  "enabled": true,
  "customer_can_purchase": true,
  "icon": "fa-solid fa-coins",
  "features_list": "['£5 credit', 'Valid for 180 days']",
  "terms": "Valid for 180 days or until all credit is used. See
our website for full rates",
  "comment": "£5 to use for Calls, SMS & Data"
}
```


□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `service_id` □□□□□□□□□□□

# □□□□□□□ Ansible

□□□□□□□□□□□□□□ API □□ Ansible playbook □□□□□□□□□□ playbooks □□□□□

## □□□□□□□

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4. □□□□ - □□□□□□□ ID□□□ `inventory_items_list` □□□□

## □□□□□□

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- `initiating_user` - □□□□□□□□ ID□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□`product_id`□`customer_id`□`service_id` □□

## □□□□

□□□□□□□□□□□□□□□□`inventory_items_list: "['SIM Card', 'Mobile Number']"`□□□□□□□□

1. □□□□/**API** □□□□□ - □□□□□□□□□□□□□□□□□□□□
2. □□ **ID** □□□□□□□□□ - □□□□□□□□□ ID □□□□□□□□□□□□□□□□□□
3. **Playbook** □□□□□ **ID** - □□ playbook □□□□□□ CRM API □□□□□□□□□□□□□

□□□□□□□□□□□□- SIM □□□□□ ID□789 - □□□□□□□□□ ID□101

□□□□ playbook □□□□□□□- `SIM Card`: 789 - `Mobile Number`: 101

□□□playbook □□□□□□□ ID □ CRM API □□□□□□□□□□□□ICCID□IMSI□MSISDN □□□□□□□□□□□□□□□□□□□□

## Ansible □□□□□□□

□□□□□□□□□□□□□□□□□ `extravars` □□□□ Ansible playbook□□ playbook □□□□□□□□□□□□ Ansible □□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□ `{{ variable_name }}` □□□□□□ playbook □□□□□□□□□□□□□`{{ product_id }}`□`{{ customer_id }}`□`{{ monthly_cost }}` □□

## □□□□□□□□□□□

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- `product_id` - □□□□□□□□□□□□ ID
- `customer_id` - □□□□□□□□□□
- `service_id` - □□□□□□□□□□□□□□□□ ID□□□□□□□□□□□□□□
- `access_token` - □□ API □□□□□□□□□□□
- □□ `provisioning_json_vars` □□□□□□
- □□ API □□□□□□□□□□□

# □□□□□□□□□□

□□□□“£5 □□”□□□□□□□□□

## □□□□

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- `enabled = true` - □□□□□□□□□□□□□
- □□□□□ `available_from` □ `available_until` □□ - □□□□□□□□□□
- `customer_can_purchase = true`□□□□□□□□□□ - □□□□□□□□□□

> ⓘ □□
>
> **API** □□□□API □□□□□□□□□□□□□□□□□□□□□□□□□□□□
>
> - □□/□□□□ (`/crm/product/`) - □□□□□□□□□□□□□□□□□□□□

# □□□□□

□□□□□□□□□□□□□□□□□□□□`service_type = "mobile"`□□

- □□□□□□□□□□□□□□□□□/□□□□□□`business = true`□`category != "addon"`□
- □□□□□□□□□□□□□□□□□□□□□`business = true`□`category = "addon"`□ `service_type = "mobile"`□
- □□□□□□□□□□□□□□□□□□□□

- **service_taxable** - □□□□□□□□□□□□□□□□□□□□true□
- **invoiced** - □□□□□□□□□□□□□□□□□□□□□□□□
- **promo_code** - □□□□□□□□□□□□□□□□□□□□

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- **service_visible_to_customer** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□true□
- **service_usage_visible_to_customer** - □□□□□□□□□□□□/□□□□□□□□□□□□□□□□□□□

- service_active_date、service_deactivate_date、contract_end_date
- icon、promo_code、site_id

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- service_id、customer_id、product_id
- service_uuid□□□□□□□□□□
- service_provisioned_date
- provisioning_play、provisioning_json_vars
- deprovisioning_play、deprovisioning_json_vars
- bundled_parent
- invoiced□□□□□□□□□
- created、last_modified□□□□□□

# □□□□□□□□

□□□□□□□□□ Web UI、API □ Ansible playbooks □□□□□□□□□□□□□□□□□□□

# □□□ API □ Ansible □□□□

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## □□ 1□□□□□□□

API □□□□□□□□□□□□□□□□□□□□□□□□

- `provisioning_play` - Ansible playbook □□□□□□□□`play_psim_only`□
- `provisioning_json_vars` - □□□□□□□□□□□□□□□ JSON □□□
- `customer_id` - □□□□□□□□ ID
- `product_id` - □□□□□□□□ ID
- `service_id` - □□□□□□□□□□□□□□□□□□ ID
- □□□□□ - □□□□□□□□□ ID

## □□ 2□□□□□

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1. □□□ `provisioning_json_vars`□□□□□□□□□□□□□□□
2. □□□□□□□□□□□□□□□□□□□□
3. □□□□□□□□□□
   - `access_token` - □□ API □□□□□□ CRM □ JWT □□
   - `initiating_user` - □□□□□□□□ ID
   - `customer_id`□`product_id`□`service_id`
4. □□□□□ - □□ `{inventory_type: inventory_id}` □□□

□□□□□□□□

```
{
    "customer_id": 123,
    "product_id": 456,
    "service_id": 789,          # □□□□□□□□
    "SIM Card": 1001,           # □□□□□□□
    "Mobile Number": 1002,      # □□□□□□□
    "monthly_cost": 30,         # □□ provisioning_json_vars
    "data_gb": 50,              # □□ provisioning_json_vars
    "access_token": "eyJ...",   # □□□□□□□ API □□
    "initiating_user": 5        # □□□□
}
```

□□ **3**□□□□□□□□

□□□□□□□□□□ `Provision` □□□□□□□

- `provision_id` - □□□□□□□□□□□□
- `provisioning_play` - playbook □□□
- `provisioning_json_vars` - □□□□□□□□ JSON □□□
- `task_count` - playbook □□□□□□□□□ YAML □□□□
- `provisioning_status` - □□□□□□□□□□□ 1 = □□□□□□□□□ 0 = □□□2 = □□□□□□□□□ 1 □□□□□□□□□
- `product_id`□`customer_id`□`service_id` - □□□□□

□□ **4**□□□ **playbook** □□

API □□□□□□□□□□

1. □ `OmniCRM-API/Provisioners/plays/{playbook_name}.yaml` □□ playbook YAML
2. □□ `ansible_runner.run()`□□□□□□
   - `playbook` - □□□ YAML □□□□□
   - `extravars` - □□□□□□□□□□□□ Ansible□
   - `inventory` - □□□ `'localhost,'`□□□□□□
   - `event_handler` - □□□□□□□□□□□□□□□□□
3. □□□□ playbook □□

□□ **5**□□□□□□□□□□□`ProvisioningEventHandler`□

□□ Ansible □□□□□□□□□□□□□□□□ `Provision_Event` □□□

- `event_name` - □□ playbook □□□□□
- `event_number` - □□□
- `provisioning_status` - □□□□□□□□□□□□□□
  - **0** = □□ - □□□□□□□
  - **1** = □□ - □□□□□□□
  - **2** = □□ - □□□□□□□□□□
  - **3** = □□□□□□□ - □□□□□□□□□□□□playbook □□ `ignore_errors: true`□
- `provisioning_result_json` - □□□□□□□□□□□□□□□

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8. □□□□□□□□ - □ OCS/CGRateS □□□□□□ ActionPlans □□□□□□□□□□

9. □□□□□□ - □ `/crm/service/` □□ PUT/POST □□□□ CRM □□□□□□□□

```
{
  "customer_id": 123,
  "product_id": 456,
  "service_name": "Mobile SIM - 0412345678",
  "service_uuid": "generated-uuid-for-ocs",
  "service_status": "Active",
  "service_type": "mobile",
  "retail_cost": 30,
  "wholesale_cost": 5,
  "provisioning_play": "play_psim_only",
  "provisioning_json_vars": "{...}"
}
```

10. □□□□ - □ `/crm/inventory/inventory_id/{{ inventory_id }}` □□ PATCH □□□ □□□□□□“□□□”□□□

11. □□□□□□□□ - □□□□□□□□□□□□□□□□□□□□

□□ **7**□□□□□□□□

□ playbook □□□□

- □□□`Provision.provisioning_status` □□□ **0**□□□□
- □□□□□`Provision.provisioning_status` □□□ **2**□□□□□□□ `crm_config.provisioning.failure_list` □□□□□□□□
- □□□□□□□□□□□ `ignore_errors: true` □□□□□□ **3**□□□□□□□□□□□□□□□

□□□□□□□□ CRM □□□□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□□□□□□□□□□□□□□□□□□□□□

□□□□`category: standalone`□□

- □□ `customer_id` □ `product_id`
- □□□□□□□□□SIM □□□□□□□□□□□□□

- □□ API PUT `/crm/service/` □□ □ □□□□
- □□□□□□□□□□□□□HSS□OCS□□□□□□
- □□□□□□□ SIM □□□□□□□□□□

□□□□□`category: addon`□□

- □□ `customer_id`□`product_id` □ **`service_id`**□□□□□□□□□□
- □□□□□□□□□□□□□□□□□
- □□□□ □□□□□□ OCS □□□□□□
- □□□ OCS □□□□□□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□
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□□□□□`category: bundle`□□

- □□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□
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- □□□□□□□□□□□□
- □ CRM □□□□□□□□□□□□□□□□□□□□□/□□
- □□□□□□□□□□□ + IPTV + VoIP □□□

# Playbook □□□□

□□□ playbook □□□□□□□□□

1. □□ `OmniCRM-API/Provisioners/plays/{playbook_name}.yaml`
2. □□ **Ansible** □ **`extravars`** □□□□□□□ `{{ variable_name }}` □□□
3. □□ **`Authorization: Bearer {{ access_token }}`** □□□□ **API** □□□□□□
4. □□□□□□□□□□□□□□□□□ `rescue` □□ `ignore_errors`
5. □□□□□□□□□□□□□□□□□□□□□□□□□□□□
6. □□□□□□□□□□□□□□□
7. □□□□□□□□□□□ **`fail`** □□□□□□□□□□□□□

# Playbooks □□□□□□

□□ playbook □□□□□□□

- `customer_id` - □□□□□□□□□□
- `product_id` - □□□□□□□□□□
- `service_id` - □□□□□□□□□/□□□□□□□□□□□
- `access_token` - □□□□□□ CRM API □□□□□ JWT □□
- `initiating_user` - □□□□□□□□□□
- □□□□□□□□ ID□`{{ inventory_type }}: inventory_id`
- □□□□ `provisioning_json_vars` □□□□□
- □□□□□□□□□□□□□□□

Playbooks □□□□□□□□□□

- □□□□□□□□□□□□ `GET /crm/product/product_id/{{ product_id }}`
- □□□□□□□□□ `GET /crm/customer/customer_id/{{ customer_id }}`
- □□□□□□□□□ `GET /crm/inventory/inventory_id/{{ SIM_Card }}`
- □□□□□`POST /crm/transaction/`
- □□□□□`PUT /crm/service/`
- □□□□□`PATCH /crm/service/{{ service_id }}`
- □□□□□ `PATCH /crm/inventory/inventory_id/{{ inventory_id }}`

# □□□□□□□□□ Playbook □□

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1. Playbook □□□`customer_id`□`product_id`□`service_id`□`access_token`
2. □□□□□□□□□`GET /crm/service/{{ service_id }}` □□□ `service_uuid`
3. □□□□□□□□□ `GET /crm/product/product_id/{{ product_id }}` □□□□□□□□□
4. □ OCS □□□□□□□`POST to CGRateS` □□□□□□ retail_cost
5. □ OCS □□□□□□□`POST to CGRateS` □□□□□□□□□□
6. □ CRM □□□□□□`POST /crm/transaction/` □□□□□□□□
7. □□□□

□□□□□ `Provision` □ `Provision_Event` □□□□□□□□□□□□□□□□

# OCS □□

`OCS`□□□□□□□□□□□□ CGRateS □□□□□□□□□□□□□□□□□□□□□□□□□□□□CRM □□□□□□□□□□□□ OCS □□□□□□□□□□□□□□□□□□

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- □□□□□ - □□□□□□□□□□□□□□□□□□□□ $30 □□ 10GB □□□□
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CRM □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ OCS □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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□□□□□□□□ OCS/CGRateS □□□□□□□□□□□□□□□□□□□□

## □□□□□□□□□

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1. **API** □□ - □□□□□ `GET /crm/service/{service_id}` □□□□□□□□□□□□□□□□□□□□□
2. □□□□□ - API □□□□□□□□□□□□□□□□□ `service_uuid`
3. **CGRateS API** □□ - □□□□ CGRateS □□□□□□□□□
    i. **Get_Balance(service_uuid)** - □□□□□□□□□□□ `BalanceMap`
        - □□□□□□□□□□□□□□□□□□□□

```
{
  "service_id": 123,
  "service_name": "Mobile Service",
  "service_uuid": "abc-123-def",
  "cgrates": {
    "BalanceMap": {
      "DATA": [{
        "ID": "DATA_10GB",
        "Value": 5368709120,
        "ExpirationDate": "2025-02-01T00:00:00Z",
        "custom_Name_hr": "10GB Data Pack",
        "custom_Expiration": "Feb 1, 2025",
        "custom_Description_String": "5 GB remaining"
      }],
      "VOICE": [{
        "ID": "VOICE_UNLIMITED",
        "Value": 999999999,
        "custom_Name_hr": "Unlimited Calls",
        "custom_Description_String": "Unlimited minutes"
      }],
      "MONETARY": [{
        "ID": "PREPAID_CREDIT",
        "Value": 25.50,
        "custom_Description_String": "$25.50 credit"
      }]
    },
    "ActionPlans": [...]
  }
}
```

5. □□□□□□□ - □□□□□□□□□□□□□

   - **ServiceUsage.js** - □□□□□□□□□□□ 3 □□□□□□
   - **UsageCard.js** - □□□□□□□□□□□
   - **UsageProgress.js** - □□□□□□/□□□□□□□□□□
   - □□□□□□□□□□□□□□□□□□□

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`BalanceMap` □□□□□□□□□□

**CGRateS** □□□□□

- `ID` - □□□□□□□□□□□□□“DATA_10GB_2025_01”□
- `Value` - □□□□□
  - □□□□□□□□5368709120 = 5 GB□
  - □□□□□□□□3600 = 1 □□□
  - □□□□□□□□100 = 100 □□□□
  - □□□□□□□□□□25.50 = $25.50□
- `ExpirationDate` - □□□□□ ISO 8601 □□□
- `Weight` - □□□□□□□□□□□□□□□□□□□□□□□□
- `DestinationIDs` - □□□□□□□□□□□□□□□["AU", "INTERNATIONAL"]□

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- `custom_Name_hr` - □ ID □□□□□□□□□
- `custom_Expiration` - □□□□□□□□□□□□“2025 □ 1 □ 15 □”□“11 □□”□
- `custom_Description_String` - □□□□□□□□□
  - □□□“5 GB □□”□“10 GB □□”
  - □□□“60 □□□□”□“□□□”
  - □□□“50 □□□□□”
  - □□□“$25.50 □□”

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- **service_visible_to_customer** - □□□ false□□□□□□□□□□□□□□□□□□□□□□□□
- **service_usage_visible_to_customer** - □□□ false□□□□□□□□□□/□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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Web UI □□□□□□□□□□

- □□□□ 3 □□□ ServiceUsage □□□□□□□
- □□□□□ `GET /crm/service/{service_id}` □□ CGRateS □□□□□□
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`Action_ServiceUUID_ServiceName_WhatitDoes`□

□□□□□□□ $60 □ GPON □□□□□ 1TB □□□□□□□□□□□□□□

`Action_kj49-adsf-1234-9742_60_GPON_1TB_MonthlyExpiry`

1. □□□□□□□□ $0
2. □ CRM □□ HTTP POST □□□□□□□□□
3. □□ 1TB □□□□□□□□□□□□ 1 □□

□□□□□□ MRC □□□□□□□□□□□□□□□□□□ `ActionPlan_{{ service_uuid }}_Monthly_Charge` □ `ActionPlan`□□□□□□□ *□□* □□□□□□□□ `ActionPlan` □□□□□□

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□□□□ `ActionPlans` □□□□□□□□□□□□□□□□□ Ansible □□□□□□□□□□□ `ExecuteAction` □□□

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`ThresholdS` □□□□□□□□□□□□□□□□□□□□□

□□ PAYG / □□□□□□□ $0□

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□□□□□□□□□□ CRM API □□□ `Balances`□`ActionPlans`□`Actions` □ `ThresholdS`□

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□□□□ `OCS` □□□□□□□□□ `ActionPlans` □□□□□□□□□

□□□□□□□□□□□□□□ `ThresholdS` □□

# □ CRM □□□□□ ActionPlans

ActionPlans□□□□□□□□□ CRM □□□□□□□□□□□□□□□□□□□□

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- □□ `service_uuid`□OCS □□□□□□□
- □□ CGRateS API □□□□ UUID □□ ActionPlans
- □□□□□□ `Get_ActionPlans(service_uuid)` □ CGRateS □

2. **ActionPlan** □□□□ - □□□□□□ ActionPlan □□□

```
{
    "ActionPlanId": "ServiceID_abc-123-
def__ProductID_456__...",
    "PlanName": "Monthly_Renewal_Plan",
    "NextExecTime": "2025-02-01T00:00:00Z",
    "custom_NextExecTime_hr": "in 11 days",
    "ActionPlanId_split_dict": {
        "ServiceID": "abc-123-def",
        "ProductID": 456,
        "CustomerID": 789,
        ...
    }
}
```

   - `ActionPlanId` - □□□□□□□□/□□/□□□□□□□□□□□□
   - `PlanName` - □□□□□□□□□□□□□□□ playbook □□□□
   - `NextExecTime` - □□□□ ActionPlan □ ISO □□□
   - `custom_NextExecTime_hr` - □□□□□□□□□□□□□□□“11 □□”□“□□”□“2025 □ 2 □ 1 □”□
   - `ActionPlanId_split_dict` - □ ActionPlanId □□□□□□□□□□

3. □□□□□□□ - ActionPlans □ **ActionPlansTable** □□□□□□□

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   - □□□□ - □□□□ ActionPlanId □□ `ProductID` □□
   - □□ - □□□□□□□□□□ `retail_cost`
   - □□□□ - □□ `custom_NextExecTime_hr`□□□□□□
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# □□ ActionPlans

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□□ **ActionPlan**□□□□□□□□□

1. □ ActionPlansTable □□□“□□□□□□”□□
2. □□□□□□□“□□□□□□□□□□□□□”
3. □□□□□□□□□□ `DELETE /crm/oam/remove_action_plan/{action_plan_id}`
4. API □□ `ocs.Remove_ActionPlan()` □ CGRateS □□□ ActionPlan
5. □□□□□“□□□ {service_id} □□□ ActionPlan {ActionPlanId}”
6. ActionPlan □□□□□

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1. □ ActionPlansTable □□□“□□□□”□□
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   - □ ActionPlanId □□□ product_id
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## □□□□□□ ActionPlans

□ CRM □□□□□□□□ActionPlans □□□□□□□□□□□□□□

□□□□□`ServiceView.js`□□

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## ActionPlans □□□□□□□□

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OmniCRM □□ **Ansible** □□□□

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- `inventory_items_list` - □□□□□□□□□□□□□□□□□□□□□`['SIM Card', 'Mobile Number']`□
- `product_id`□`product_name`□□□□□ - □□□□□□□□

## □□□□□□

```
{
  "product_id": 1,
  "product_slug": "Mobile-SIM",
  "product_name": "Mobile SIM Only",
  "provisioning_play": "play_psim_only",
  "provisioning_json_vars": "{\"iccid\": \"\", \"msisdn\": \"\"}",
  "inventory_items_list": "['SIM Card', 'Mobile Number']",
  "retail_cost": 0,
  "retail_setup_cost": 0,
  "wholesale_cost": 3,
  "wholesale_setup_cost": 1
}
```

## □□□□□□□□

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1. □□ **`provisioning_play`** □□□□□□

   □□□□ `OmniCRM-API/Provisioners/plays/play_psim_only.yaml`

2. □□□□□□□□□□□□ **`extra_vars`** □□

   i. □□ **`provisioning_json_vars`**□`{"iccid": "", "msisdn": ""}`
   ii. □□□□□□□□/API □□□□□□□□□□
   iii. □□□□□□□□`product_id`□`customer_id` □
   iv. □□□□□□□□`access_token` □ `refresh_token` □□□

3. □□ **`inventory_items_list`** □□□□

   □□□□□□□□□UI/API □□□□□□□□□□

   - **SIM** □ - □□□□□□□□□□□□ SIM

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□□□□□ ID □□□□ `extra_vars` □□□□□□□□□□

```
extra_vars = {
    "product_id": 1,
    "customer_id": 456,
    "SIM Card": 789,         # □□ SIM □ inventory_id
    "Mobile Number": 101,    # □□□□□□□ inventory_id
    "iccid": "",             # □□ provisioning_json_vars
    "msisdn": "",            # □□ provisioning_json_vars
    "access_token": "eyJ..."
}
```

4. □□ **`hostvars[inventory_hostname]`** □□□□□□□□ **Ansible**

□□□□□□□□□□□□□□□□

```
- name: Get inventory_id for SIM Card
  set_fact:
    inventory_id_sim_card: "{{ hostvars[inventory_hostname]
['SIM Card'] | int }}"
  when: "'SIM Card' in hostvars[inventory_hostname]"
```

# □□□□□□□□□□

□□□□□□□□□ ID□□□□□ API □□□□□□□□□□□□□□

```
- name: Get SIM Card Details from Inventory
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: sim_card_response

- name: Extract ICCID and IMSI from inventory
  set_fact:
    iccid: "{{ sim_card_response.json.iccid }}"
    imsi: "{{ sim_card_response.json.imsi }}"

- name: Get Phone Number Details from Inventory
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_phone_number }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: phone_number_response

- name: Extract MSISDN
  set_fact:
    msisdn: "{{ phone_number_response.json.msisdn }}"
```

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- □ HSS □□□ SIM □□ IMSI
- □□□□□□□□□□□□□□
- □□□□□□□□□□□
- □□□□□□□□□□□□□□□□

## □□□□□□□□□ SIM □□

□ `play_psim_only.yaml`□□□□□□□□□□□□□□□□□□□□

```
- name: Get Product information from CRM API
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/product/product_id/{{
product_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: api_response_product

- name: Set package facts from product
  set_fact:
    package_name: "{{ api_response_product.json.product_name }}"
    package_comment: "{{ api_response_product.json.comment }}"
    setup_cost: "{{ api_response_product.json.retail_setup_cost
}}"
    monthly_cost: "{{ api_response_product.json.retail_cost }}"

- name: Set inventory_id_sim_card if SIM Card was selected
  set_fact:
    inventory_id_sim_card: "{{ hostvars[inventory_hostname]['SIM
Card'] | int }}"
  when: "'SIM Card' in hostvars[inventory_hostname]"

- name: Set inventory_id_phone_number if Mobile Number was
selected
  set_fact:
    inventory_id_phone_number: "{{ hostvars[inventory_hostname]
['Mobile Number'] | int }}"
  when: "'Mobile Number' in hostvars[inventory_hostname]"

- name: Get SIM Card details from inventory
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: sim_inventory_response

- name: Get Phone Number details from inventory
  uri:
```

```
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_phone_number }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: phone_inventory_response

- name: Extract values from inventory
  set_fact:
    iccid: "{{ sim_inventory_response.json.iccid }}"
    imsi: "{{ sim_inventory_response.json.imsi }}"
    msisdn: "{{ phone_inventory_response.json.msisdn }}"
    ki: "{{ sim_inventory_response.json.ki }}"
    opc: "{{ sim_inventory_response.json.opc }}"

- name: Provision subscriber on HSS
  uri:
    url: "http://{{ hss_server }}/subscriber/{{ imsi }}"
    method: PUT
    body_format: json
    body:
      {
        "imsi": "{{ imsi }}",
        "msisdn": "{{ msisdn }}",
        "ki": "{{ ki }}",
        "opc": "{{ opc }}",
        "enabled": true
      }
    status_code: 200

- name: Assign inventory to customer
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: PATCH
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "customer_id": {{ customer_id }},
        "item_state": "Assigned"
```

```
      }
    status_code: 200
```

□□□□□□□□□□□

1. □□□□□□□ `provisioning_play: "play_psim_only"`
2. □□□□□ `inventory_items_list: ['SIM Card', 'Mobile Number']`
3. □□□□□□□□□□□□□□□□
4. □□ ID □□ `extra_vars` □□□□□
5. □□□ API □□□□□□□□□□□□
6. □□□□□□□□□□□□□□□□
7. □□□□□□□□□□□□□□□

# □□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Ansible □ `block` □ `rescue` □□□□□□□□□□□□

□□□□

□□ `play_psim_only.yaml`□

```yaml
- name: OmniCore Service Provisioning 2024
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: Main block
      block:
        # --- □□□□ ---
        - name: Get Product information
          uri: ...

        - name: Create account in OCS
          uri: ...

        - name: Provision subscriber on HSS
          uri: ...

        - name: Create service record
          uri: ...

        # ... □□□□□□□□ ...

      rescue:
        # --- □□□□ ---
        # □□□□□□□□□□□□□
        # 1. □□□□□□□□□□□□□
        # 2. action == "deprovision"□□□□□□

        - name: Get Inventory items linked to this service
          uri:
            url: "{{ crm_config.crm.base_url
}}/crm/inventory/customer_id/{{ customer_id }}"
            method: GET
          register: inventory_api_response
          ignore_errors: True

        - name: Return inventory to pool
          uri:
            url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ item.inventory_id }}"
            method: PATCH
            body_format: json
```

```
      body:
        service_id: null
        customer_id: null
        item_state: "Used"
    with_items: "{{ inventory_api_response.json.data }}"
    ignore_errors: True

  - name: Delete Account from Charging
    uri:
      url: "http://{{ crm_config.ocs.OCS }}/jsonrpc"
      method: POST
      body:
        {
          "method": "ApierV1.RemoveAccount",
          "params": [{
              "Tenant": "{{ crm_config.ocs.ocsTenant }}",
              "Account": "{{ service_uuid }}"
          }]
        }
    ignore_errors: True

  - name: Delete Attribute Profile
    uri:
      url: "http://{{ crm_config.ocs.OCS }}/jsonrpc"
      method: POST
      body:
        {
          "method": "APIerSv1.RemoveAttributeProfile",
          "params": [{
              "ID": "ATTR_ACCOUNT_{{ service_uuid }}"
          }]
        }
    ignore_errors: True

  - name: Remove Resource Profile
    uri: ...
    ignore_errors: True

  - name: Remove Filters
    uri: ...
    ignore_errors: True

  - name: Deprovision Subscriber from HSS
    uri:
```

```
            url: "{{ item.key }}/subscriber/{{
item.value.subscriber_id }}"
            method: DELETE
          loop: "{{ hss_subscriber_data | dict2items }}"
          ignore_errors: True
          when:
            - deprovision_subscriber | bool == true

        - name: Patch Subscriber to Dormant State
          uri:
            url: "{{ item.key }}/subscriber/{{
item.value.subscriber_id }}"
            method: PATCH
            body:
              {
                "enabled": true,
                "msisdn": "9999{{ imsi[-10:] }}",  # □□□□
                "ue_ambr_dl": 9999999,              # □□□□□□
                "ue_ambr_ul": 9999999
              }
          loop: "{{ hss_subscriber_data | dict2items }}"
          when:
            - deprovision_subscriber | default(false) | bool ==
false

        # □□□□□□□□□□□□
        - name: Set status to "Success" if Manual deprovision /
Fail if failed provision
          assert:
            that:
              - action == "deprovision"
```

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**1.** □□□□□

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- □□□□□□□□□□□□ `block` □□□□□□□□□□`rescue` □□□□□□□□
- □□□□□□□□□□□□ `action: "deprovision"`□□□□□□□□□□ `rescue`

**2.** □□□□□□□

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- □□□□□ OCS □□□□□
- □□□□□□□□□□□□□□□□
- □□□□□□□□□□
- HSS □□□□□□□□□□□□□
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**3. □□ ignore_errors □□□□□□□□□□**

□□□□□□□□□□□□ `ignore_errors: True`□□□□□□□□□□□

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- □□ OCS □□□□□□□□□□□□□□
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- □□□□□□□□□
- □□ HSS □□□□□□□□□□□□□□□

**4. □□□□□□□□□**

`rescue` □□□□□□□□□□□□

```
- name: Set status to "Success" if Manual deprovision / Fail if
failed provision
  assert:
    that:
      - action == "deprovision"
```

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- □□ ``**action == "deprovision"**``□□□□□□□□□□□□□□ 0□
- □□ ``**action**`` □□□□ **!= "deprovision"**□□□□□□□□□□□□□□ 2□

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**5.** □□□□□□□□□□□□

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```
- name: Deprovision Subscriber from HSS
  uri: ...
  when:
    - deprovision_subscriber | bool == true

- name: Patch Subscriber to Dormant State
  uri: ...
  when:
    - deprovision_subscriber | default(false) | bool == false
```

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- □□□□□□□ SIM □□□□□□□ (`deprovision_subscriber: true`)
- □□□□□□□ SIM □□□□□□□□□□□ HSS □ (`deprovision_subscriber: false`)

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□□□□□

```
{
  "product_id": 1,
  "customer_id": 456,
  "provisioning_play": "play_psim_only"
}
```

□□□□□□□□□□ `rescue` □□□□□

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```
{
  "service_id": 123,
  "service_uuid": "Service_abc123",
  "action": "deprovision",
  "provisioning_play": "play_psim_only"
}
```

□□□□□□□ `rescue` □□□□□□□□□□□□□□□

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## □□□□□□

`provisioning_json_vars` □□□□□□□□□□□□□□□□□□□□□□

```
{
  "provisioning_json_vars": "{\"monthly_cost\": 50,
\"data_limit_gb\": 100}"
}
```

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```
{
  "product_id": 1,
  "customer_id": 456,
  "monthly_cost": 45,
  "data_limit_gb": 150
}
```

□□□ `extra_vars` □□□□□□□□□□□□□

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- □□□□□□□□□□□□
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## □□□□□□□

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```
{
  "product_id": 10,
  "product_name": "Extra 10GB Data",
  "provisioning_play": "play_local_data_addon",
  "provisioning_json_vars": "{\"data_gb\": 10}",
  "inventory_items_list": "[]"
}
```

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```
extra_vars = {
    "product_id": 10,
    "customer_id": 456,
    "service_id": 123,  # □□□□□□□□□
    "data_gb": 10,
    "access_token": "eyJ..."
}
```

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# □□□□□□□

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- □□□□ UI □□□□□□□□
- □□□□□□□□□□□□□□□□
- API □□□ `PUT /crm/provision/`

## □□□□“□□”□

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**1. UI □□□□□□**

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- `provisioning_play` - □□□□ Ansible □□
- `inventory_items_list` - □□□□□□□□ `['SIM Card', 'Mobile Number']`□
- `provisioning_json_vars` - □□□□

**2.** □□□□□□□□□□□□

□□ `inventory_items_list` □□□□□□□□□□□□□□□□□□□□

**4. API □□□□**

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- □□□□□□□□Bearer □□□API □□□ IP □□□□
- □□□□□□□□ `CREATE_PROVISION` □□
- □□□□□□ `initiating_user`
- □□□□□□□□□□
- □□□□□□□ `OmniCRM-API/Provisioners/plays/play_psim_only.yaml`

**5. □□□□**

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```
# □□□□
product_vars = json.loads(product['provisioning_json_vars'])
# □□□□□
request_vars = request_body_json
# □□□□
system_vars = {
    'product_id': 42,
    'customer_id': 123,
    'access_token': auth_token,  # □□□□□□□□□□□□
    'initiating_user': 7
}
# □□□□
extra_vars = {**product_vars, **request_vars, **system_vars}
```

**6. □□□□□□**

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```
provision = {
    'provision_id': 456,
    'customer_id': 123,
    'product_id': 42,
    'provisioning_play': 'play_psim_only',
    'provisioning_json_vars': json.dumps(extra_vars),
    'provisioning_status': 1,  # □□□
    'task_count': 85,
    'initiating_user': 7,
    'created': '2025-01-10T14:30:00Z'
}
```

**7. □□□□□□□**

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- □□□`play_psim_only.yaml`
- □□□□□□□ extra_vars
- □□ ID□456□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□

**8. API □□□□**

□□□□□ UI□□□ `provision_id`□

```
{
  "provision_id": 456,
  "provisioning_status": 1,
  "message": "Provisioning job created"
}
```

**9. UI □□□□**

UI □□□ 3 □□□□□ `GET /crm/provision/provision_id/456` ��□□□□□□□□□□

```
{
  "provision_id": 456,
  "provisioning_status": 1,
  "task_count": 12,
  "provisioning_result_json": [
    {
      "event_number": 1,
      "event_name": "Get Product information from CRM API",
      "provisioning_status": 0,
      "timestamp": "2024-01-15T10:30:05"
    },
    {
      "event_number": 2,
      "event_name": "Assign SIM Card from inventory",
      "provisioning_status": 1,
      "timestamp": "2024-01-15T10:30:07"
    }
  ]
}
```


**10. Ansible □□□□□**

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- □□□□□□□□□□□□□□□ `Provision_Event` □□
- □□□□□□□□□□□□□□□0=□□□2=□□□3=□□□□□□□□□□ JSON
- UI □□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□

□ **UI** □□□□

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✓ □ CRM API □□□□□□□ ✓ □□□□□□□□□ ✓ □□□□□□□ SIM □□ICCID□ 89911012000032045 10□ ✓ □□□□□□□□555-0123□ ⟳ □ OCS/CGRateS □□□□□□□□□ □...□ □ □□□□□□□ □ □□□□□□□ ...

**11.** □□□□

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- `provisioning_status: 0` - □□
- `provisioning_status: 2` - □□□□□□□□□

UI □□□□□□□□□□□

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# □□□□□□□

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- □□□□□□`initiating_user` □□□□□□□ JWT □□□□□□□ ID
- **API** □□□□□□□□□□□□□□□□□□□□ ID
- **IP** □□□□□□□□□□□□□□□□□□□□ ID

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- □□□□□ `CREATE_PROVISION` □□
- □□□□□□□□□□□□□□□□□□`VIEW_OWN_PROVISION` □□□

**Ansible □□□□□ CRM API □□□□□□□**

Ansible □□□□□□ CRM □□□□□□□□□□ API □□□□□□□□□□□□□□□□□□□□

`access_token` □□□□□□□□□□□□□□ API □□□□□□□□□

□□ **1□□□□□□Bearer □□□**

□□□□□□ Web UI □□□□

1. □□□□□□□□□□`POST /crm/auth/login`
2. □□ JWT `access_token`□□□□□□□15-30 □□□□ `refresh_token`□□□□□□
3. □□ Bearer □□□□□□□□□□□□
4. □□ API □ `Authorization: Bearer ...` □□□□□□
5. □□□□□□□□□□□□
6. □□ `access_token` □□□□□ Ansible

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□□□ Authorization □□□□ Bearer □□□□□□□□□□□□□□

□□□□□□□□□□□□ API □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ JWT□□□□□□□□□□□□□□□

□□ **3□IP □□□**

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1. □□□□□□□ IP□□□□192.168.1.100□□□□□□
2. □□ API □□□□□□ IP □□□ `crm_config.yaml` □□ `ip_whitelist` □
3. □□□□□□□□□□□□□□□□□□□□□□□□□□□ **JWT** □□
4. □□□□□□□□□□□□
5. □□□ Ansible

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□□□□□□□□ IP □□□□□□□□□□□□□□□□□□□□□□□□□□□□ JWT □□□□□□□□□□□□

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□□□□□□□ API □□□□□□□□□□

```
- name: Get Product Details
  uri:
    url: "http://localhost:5000/crm/product/product_id/{{
product_id }}"
    headers:
      Authorization: "Bearer {{ access_token }}"

- name: Create Service Record
  uri:
    url: "http://localhost:5000/crm/service/"
    method: PUT
    headers:
      Authorization: "Bearer {{ access_token }}"
    body:
      customer_id: "{{ customer_id }}"
      service_name: "Mobile Service"
```

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```
refresh_token = request.cookies.get('refresh_token')
run_playbook(playbook_path, extra_vars, provision_id,
refresh_token=refresh_token)
```

□□ `access_token` □□□□□□□□□□□□

1. □□ 401 □□□□□
2. □□ `refresh_token` □□ `POST /crm/auth/refresh`
3. □□□□ `access_token`
4. □□□□□□□□

□□ API □□/IP □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□1-2 □□□□□□□□□□□□□□□□□□□□□□□□

# □□□□

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   - □□□□□□□□□□□ 1□□□□□□ `Provision` □□
   - □□□□□□□□□□□□□□□□
   - □□□□ API □□□□□□□□□□

2. □□□□

   Ansible □□□□□□□ CRM API □□□□□□□□□□□□□□□□□□□□

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- □□□□□□□□□□□□□□
- UI □□□□ `GET /crm/provision/provision_id/<id>` □□□□

4. □□□□

   Ansible □□□□□□□□□□□□□

   - □ API □□□□□□□
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   - □□□□□□□□SIM □□IP □□□□□□□□□□
   - □ OCS/OCS □□□□□
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   - □ CRM API □□□□□□□□
   - □□□□□□□□□
   - □□□□□□□□□□□□/SMS

5. □□□□

   Ansible □□□□ `block` □ `rescue` □□□□□□□□

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   - □□ `ignore_errors: true` □□□□□□□□□ 3□□□□□□□□□□
   - □□□□□□YAML □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□□□□□□

□□□□□ `play_simple_service.yaml` □□□□

```
- name: Simple Provisioning Play
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: Main block
      block:
      - name: Get Product information from CRM API
        uri:
          url: "http://localhost:5000/crm/product/product_id/{{
product_id }}"
          method: GET
          headers:
            Authorization: "Bearer {{ access_token }}"
          return_content: yes
          validate_certs: no
        register: api_response_product

      - name: Set package facts
        set_fact:
          package_name: "{{ api_response_product.json.product_name
}}"
          setup_cost: "{{
api_response_product.json.retail_setup_cost }}"
          monthly_cost: "{{ api_response_product.json.retail_cost
}}"

      - name: Generate Service UUID
        set_fact:
          service_uuid: "Service_{{ 99999999 | random | to_uuid
}}"

      - name: Create account in OCS
        uri:
          url: "http://{{ crm_config.ocs.OCS }}/jsonrpc"
          method: POST
          body_format: json
          body:
            {
              "method": "ApierV2.SetAccount",
              "params": [{
                  "Tenant": "{{ crm_config.ocs.ocsTenant }}",
```

```
                  "Account": "{{ service_uuid }}",
                  "ActionPlanIds": [],
                  "ExtraOptions": { "AllowNegative": false,
"Disabled": false }
                }]
              }
            status_code: 200
          register: response

      - name: Add Service via API
          uri:
            url: "http://localhost:5000/crm/service/"
            method: PUT
            body_format: json
            headers:
              Authorization: "Bearer {{ access_token }}"
            body:
              {
                "customer_id": "{{ customer_id }}",
                "product_id": "{{ product_id }}",
                "service_name": "Service: {{ service_uuid }}",
                "service_uuid": "{{ service_uuid }}",
                "service_status": "Active",
                "retail_cost": "{{ monthly_cost | float }}"
              }
            status_code: 200
          register: service_creation_response

      - name: Add Setup Cost Transaction
          uri:
            url: "http://localhost:5000/crm/transaction/"
            method: PUT
            headers:
              Authorization: "Bearer {{ access_token }}"
            body_format: json
            body:
              {
                "customer_id": {{ customer_id | int }},
                "service_id": {{
service_creation_response.json.service_id | int }},
                "title": "{{ package_name }} - Setup Costs",
                "retail_cost": "{{ setup_cost | float }}"
              }
          register: api_response_transaction
```

```
    rescue:
      - name: Remove account in OCS
        uri:
          url: "http://{{ crm_config.ocs.OCS }}/jsonrpc"
          method: POST
          body_format: json
          body:
            {
              "method": "ApierV2.RemoveAccount",
              "params": [{
                  "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                  "Account": "{{ service_uuid }}"
              }]
            }
          status_code: 200

      - name: Fail the provision
        assert:
          that:
            - false
```

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1. □ CRM API □□□□□□□□
2. □□□□□□□ UUID
3. □ OCS □□□□□□□
4. □□ CRM API □□□□□□
5. □□□□□□□□
6. □□□□□□□□□ `rescue` □□□□□ OCS □□

# □□□□□□

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- `POST /crm/provision/simple_provision_addon/service_id/<id>/product_id/<id>`

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- `POST /crm/provision/simple_provision_addon_recharge/service_id/<id>/product_id/<id>`

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## □□□□□□□□□

□□□□□□□□ **IP** □□□ □ **API** □□ □□□□□□□

- □□□□ IP □□□□□□ `crm_config.yaml` □□ `ip_whitelist` □
- □□□□□□□□ `crm_config.yaml` □□ `api_keys` □ API □□
- □□□□□□□□□□□□

## □□□OCS ActionPlan □□

OCS □□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
{
  "method": "ApierV1.SetActionPlan",
  "params": [{
    "Id": "ActionPlan_Service123_Monthly_Charge",
    "ActionsId": "Action_Service123_Add_Monthly_Data",
    "Timing": {
      "Years": [],
      "Months": [],
      "MonthDays": [1],
      "Time": "00:00:00Z"
    },
    "Weight": 10,
    "ActionTriggers": [
      {
        "ThresholdType": "*min_event_counter",
        "ThresholdValue": 1,
        "ActionsID": "Action_Service123_HTTP_Callback"
      }
    ]
  }]
}
```

□□□□□□ HTTP POST □□

□□□□□□□□□□□□□□□`play_topup_no_charge.yaml`□□□□□/□□□□□□□□□□

## □□□□□□□□□

□□ `play_topup_monetary.yaml`□

```yaml
- name: Mobile Topup Monetary - 2024
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: Get Product information from CRM API
      uri:
        url: "http://localhost:5000/crm/product/product_id/{{
product_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
      register: api_response_product

    - name: Get Service information from CRM API
      uri:
        url: "http://localhost:5000/crm/service/service_id/{{
service_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
      register: api_response_service

    - name: Set service facts
      set_fact:
        service_uuid: "{{ api_response_service.json.service_uuid
}}"
        customer_id: "{{ api_response_service.json.customer_id }}"
        package_name: "{{ api_response_product.json.product_name
}}"
        monthly_cost: "{{ api_response_product.json.retail_cost
}}"

    - name: Get Customer Payment Method
      uri:
        url: "http://localhost:5000/api/payments/methods/default?
customer_id={{ customer_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
```

```
      return_content: yes
    register: api_response_payment_method

- name: Charge customer
  uri:
    url: "http://localhost:5000/api/payments/charge"
    method: POST
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "customer_id": "{{ customer_id | int }}",
        "amount": "{{ monthly_cost }}",
        "currency": "USD",
        "metadata": {
          "description": "{{ package_name }} topup",
          "service_id": "{{ service_id | int }}"
        }
      }
  register: api_response_payment

- name: Add monetary balance to OCS
  uri:
    url: "http://{{ crm_config.ocs.OCS }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
            "Tenant": "{{ crm_config.ocs.ocsTenant }}",
            "Account": "{{ service_uuid }}",
            "BalanceType": "*monetary",
            "Balance": {
                "Value": "{{ monthly_cost | float * 100 }}",
                "ExpiryTime": "+4320h"
            }
        }]
      }
    status_code: 200

- name: Add Transaction to CRM
  uri:
```

```
        url: "http://localhost:5000/crm/transaction/"
        method: PUT
        headers:
          Authorization: "Bearer {{ access_token }}"
        body_format: json
        body:
          {
            "customer_id": {{ customer_id | int }},
            "service_id": {{ service_id | int }},
            "title": "{{ package_name }}",
            "retail_cost": "{{ monthly_cost | float }}"
          }

    - name: Send Notification SMS
      uri:
        url: "http://sms-gateway/SMS/plaintext/{{ api_key }}"
        method: POST
        body_format: json
        body:
          {
            "source_msisdn": "YourCompany",
            "destinatination_msisdn": "{{ customer_phone }}",
            "message_body": "Thanks for topping up {{ monthly_cost
}}!"
          }
        status_code: 201
      ignore_errors: True
```

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1. □ API □□□□□□□□□□□□
2. □□□□□□□□□□
3. □□ Stripe API □□□□□
4. □□□□□□□□□ OCS
5. □ CRM □□□□□
6. □□□□ SMS□□□ `ignore_errors: True`□□□□□□□□□□□□□□□

# □□□

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- □□□ SMS/email □□□□
- □□□□□□□□□□□ `ignore_errors: True`□
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- Ansible □□□□
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# □□□□□□□

OmniCRM □□□□□□□

## □□□□□□

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```
GET /crm/provision/?
page=1&per_page=20&sort=provision_id&order=desc
Authorization: Bearer <token>
```

□□□□□

```
GET /crm/provision/?filters={"provisioning_status":
[2]}&search=Mobile
Authorization: Bearer <token>
```

□□□□□□□□□□□□□ 2□□□□□□□“Mobile”□

# □□□

## □□□

- □□□ **block/rescue**□□□□□□□□□□
- □□□ **ignore_errors**□□□□□□□□□□
- □□□□□□□□□ `debug` □□□□□□□□□□□□□□
- □□□□□□□ `assert` □□ API □□□□□□□□
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## □□□

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- □□□□□□□□ IP □□□□ API □□□□□□□□□
- □□□□refresh_token □□□□□□□□□□□□□□

## □□□□

- □□□□□□□□□□□□□□□ customer_id□service_id □□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□ Provision_Event □□□□□□□□□□□/□□□□

## □□

- □□□□□□□□□□□□□□ customer_id□product_id□service_id
- □□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□/□□
- **IP** □□□□□□□□□□□□□□□□□□□□□□□□□□

## □□

- □□□□□□□□□□□□ API □□□□□□□□
- □□□□□UI □□ 2-5 □□□□□□□□□□
- □□□□□□□□ Ansible □□□□□□□□□□□□□
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# □□□□

- `concepts_ansible` - □□ Ansible □□□□
- `concepts_sim_provisioning` - SIM □□□□□□□□ eSIM□
- `concepts_api` - CRM API □□□□□□□□
- `concepts_products_and_services` - □□□□□□□□
- `administration_inventory` - □□□□□□□□
- □□□□□ - □□□□□□□□□□

# SIM□□□

OmniCRM□□□□□□□□□□MVNO□□□□□□□□**SIM**□□**eSIM**□□□□SIM□□□□□□□□□□

# □□SIM□□□

□□SIM□□□□□□□□□□□□□□□SIM□□OmniCRM□□□□□□□□□□□□□□□□□□□□HSS/IMS□□□□□□□□

## □□SIM□□□

**1.** □□□□

SIM□□□□□□□□□□□□□□□

- **ICCID**□□□□□□□□□□ - □□□SIM□□□□
- **IMSI**□□□□□□□□□□ - □□□□□□□□

□□□□□□□□□□□□□□□□

- `itemtext1`: ICCID
- `itemtext2`: IMSI
- `itemtext3`: SIM□□□□□/eSIM□ - □□

□□□□**SIM**□□□□□

```
{
  "inventory_id": 1001,
  "item": "SIM Card",
  "itemtext1": "89612345678901234567",  // ICCID
  "itemtext2": "310120123456789",       // IMSI
  "itemtext3": "Physical",               // SIM Type
  "item_location": "Warehouse A, Shelf 3",
  "item_state": "New",
  "wholesale_cost": 2.50,
  "retail_cost": 10.00
}
```

□□□□□□□□□□itemtext1-20□item_state□□□□□□□□management_url□□□□□□□□□□□□□□□□ - □□□□□□□□

□□□□□□□□□

SIM□□□□□□□□□□□□□**HSS AuC□□□□□□□**□□□□□□□CRM□□□□

- **Ki**□□□□□□□ - □□□□□□□□□□□□□□□HSS□□
- **OPC**□□□□□□□□ - □□□□□□□□□□□□□□□□□□□HSS□□
- **PIN1/PIN2** - □□PIN□□□□□□HSS□□
- **PUK1/PUK2** - PIN□□□□□□□□HSS□□

CRM□□□□□□□SIM□□ICCID/IMSI□□□□□□□□□□□□HSS□□□□□□SIM□□□□Ki/OPC□□□□□□□□□□□□□□□□□□

**2.** □□□□

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1. □□□□□□□□□□□□□□□□□□□□SIM□
2. □□□□□□□□□□□□□□□□□□□□MSISDN□
3. □□□□□□□□□□□□□□□`play_psim_only.yaml`□

**3. HSS□□**

Ansible□□□□□□□□□□□□□□□□□□□HSS□□

□□□□□□□**auc_id**□□□□□□□HSS□□□□□□□□□□□□□□□

```
- name: Get AuC ID for IMSI
  uri:
    url: "{{ item }}/auc/imsi/{{ imsi }}"
    method: GET
  loop: "{{ hss_peers }}"
  register: auc_lookup

- name: Extract auc_id
  set_fact:
    auc_id: "{{ auc_lookup.results[0].json.auc_id }}"
```

□□□□□□□□auc_id□□□□□□□

```
- name: Provision subscriber on HSS
  uri:
    url: "{{ item }}/subscriber/"
    method: PUT
    body_format: json
    body:
      enabled: true
      roaming_enabled: true
      auc_id: "{{ auc_id }}"
      msisdn: "{{ phone_number }}"
      imsi: "{{ imsi }}"
      ue_ambr_dl: 9999999
      ue_ambr_ul: 9999999
      apn_list: "1,2,3"
      default_apn: 1
  loop: "{{ hss_peers }}"
```

□□□□□□□□Ki□OPC□□□□HSS AuC□□□□□□□□□□CRM□□□□□□□

**4. IMS□□□□□□□□□□**

□□□□□□□□□□□□□□IMS□□□

```
- name: Create IMS subscriber for voice services
  uri:
    url: "{{ item }}/ims_subscriber/"
    method: PUT
    body_format: json
    body:
      imsi: "{{ imsi }}"
      msisdn: "{{ phone_number }}"
      msisdn_list: "{{ phone_number }}"
      ifc_path: "default_ifc.xml"
      sh_profile: "{{ sh_profile_xml }}"
  loop: "{{ hss_peers }}"
```

**5. □□□□□□**

OCS□□□□□□□□□□□□□

- □□□□
- IMSI/MSISDN□□□□□□□□□□□
- □□□□□□□□□□
- □□□□□□□□□□□
- □□□□

**6.** □□□□□□□□□□

□□□

- □CRM□□□□□□□
- □SIM□□□□□□□□□□□□□`customer_id`□□□
- □SIM□□□□□□□`service_id`□□□
- □□□□□□□“□□□”

## □□SIM□□□□

□□SIM□□□□□HSS□□AuC□□□□□□□□□

- **Ki□OPC**□□4G/5G□□□□□MILENAGE□□□
- □□□□SIM□□□□□□□□□HSS AuC□□□□
- □□SIM□□□□□□Ki/OPC□
- □□□□□□□□□□**auc_id**□□□□□□□□□□
- □□□□□□□□SIM□HSS□□□□□-□□□□
- CRM□□□□□□□□□□Ki/OPC□

# eSIM□□

eSIM□□□□SIM□□□□□□□□□□□□□□□□□□□□SIM□□□□□□□□□SIM□□OmniCRM□□□□LPA□□□□□□□□□□□□□□□eSIM□□□

## eSIM□□

**LPA□□□□**

eSIM□□LPA□□□□□□□

```
LPA:1$smdp.example.com$ACTIVATION-CODE-ABC123XYZ
```

□□□

- `LPA:1` - LPA□□□□□
- `smdp.example.com` - SM-DP+□□□□□□□□□□□□□□□□
- `ACTIVATION-CODE-ABC123XYZ` - □eSIM□□□□□□□□□□□

□□□□□

OmniCRM□□□LPA□□□□□□□□□□

- □□□□□`management_url`□□□
- □UI□□□□□□□□□□□
- □□□□□□□□□□□□□□□eSIM□□□□
- □□□□□□□□□□□

□□**eSIM**□□□□□

```
{
  "inventory_id": 1002,
  "item": "eSIM",
  "itemtext1": "89612345678901234567",
  "itemtext2": "310120123456790",
  "itemtext3": "eSIM",
  "management_url": "LPA:1$smdp.example.com$ACTIVATION-CODE-
ABC123XYZ",
  "item_location": "Virtual Inventory",
  "item_state": "New",
  "wholesale_cost": 0.00,
  "retail_cost": 0.00
}
```

□UI□□□□□□□□□□□□□□□□

**1. □□eSIM□□**

□□□□□□SIM□□□□□□SIM□□□□□□□□□□□□□□□eSIM□

```
# □□eSIM□□
search_filters = {
    "customer_id": [None],
    "item_state": ["New"],
    "itemtext3": ["eSIM"]  # □□eSIM□□
}
available_esim = search_inventory("SIM Card",
filters=search_filters)
```

**2. HSS/IMS□□**

eSIM□□□□□□SIM□□□□□

- □□□IMSI□□
- □□□IMS□□□□□
- □□□□□□□□□□Ki□OPC□

**3. □□□□**

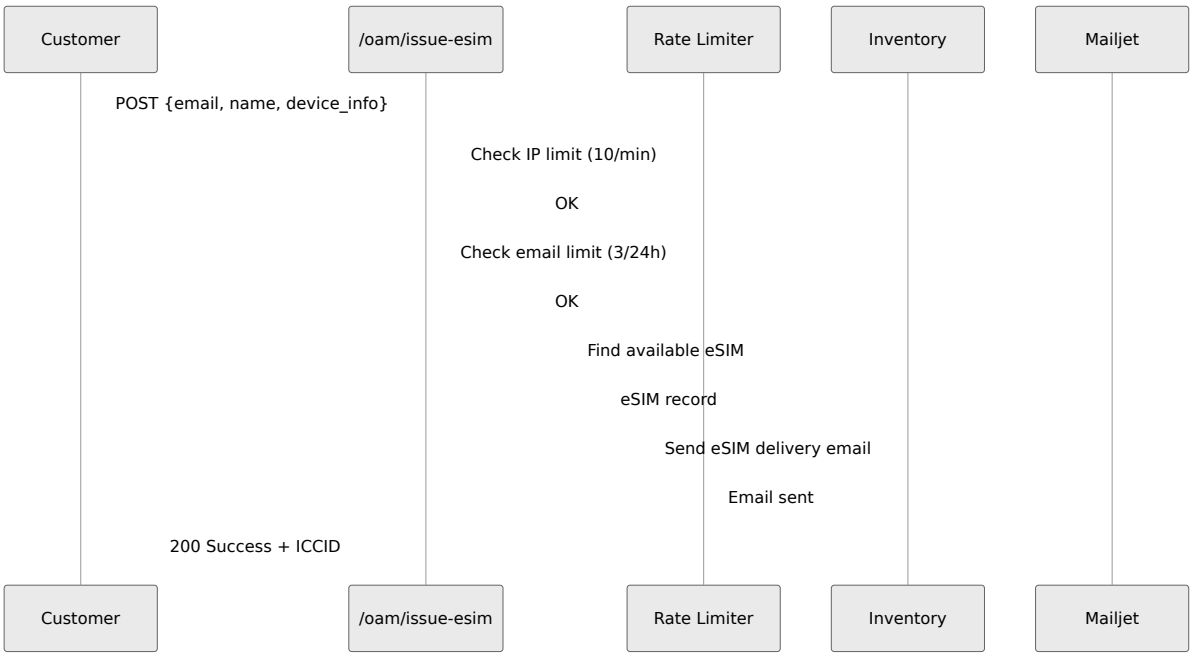
□□□□□□

1. □□□□□□□□□□□□□□□□□eSIM□□□□□□
2. □□□□□□□□□□
3. □□□□□□□□□□□□
4. □□□SM-DP+□□□□□eSIM□□□□
5. eSIM□□□□□□□

# □□eSIM□□□API

OmniCRM□□□□□□API□□□□□□□□□eSIM□□□□□□□□□□□□□□□□□□□□□eSIM□□□□□□□□□

□□□ `POST /crm/oam/issue-esim`


Customer
/oam/issue-esim
Rate Limiter
Inventory
Mailjet
POST {email, name, device_info}
Check IP limit (10/min)
OK
Check email limit (3/24h)
OK
Find available eSIM
eSIM record
Send eSIM delivery email
Email sent
200 Success + ICCID
Customer
/oam/issue-esim
Rate Limiter
Inventory
Mailjet

## □□□□

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| --- | --- | --- | --- | --- |
| `email` | □□□ | □ | - | □□□□

| □□ | □□ | □□ | □□ |
| --- | --- | --- | --- |
| 10□□□ | 1□□ | □□IP□□ | □□□□□□□□□□□□□□□ |
| 3□□□ | 24□□ | □□□□□□□□□ | □□□□□□□□□□□□□□eSIM□□ |

□□□□□□□□□□□□□□□HTTP 429□□□`error_type: "RateLimitExceeded"`□

□□□□

□□□□□**HTTP 200**□□

```
{
  "result": "Success",
  "message": "eSIM request received. You will receive your eSIM QR
code via email shortly.",
  "esim_id": 8472,
  "iccid": "89442000000001234567",
  "email_sent": true
}
```

| □□ | □□ | □□ |
| --- | --- | --- |
| `result` | □□□ | □□HTTP 200□□□□□`"Success"` |
| `message` | □□□ | □□□□□□□ |
| `esim_id` | □□ | □□□eSIM□□□ID |
| `iccid` | □□□ | □□□eSIM□ICCID |
| `email_sent` | □□□ | □□□□□□□□□□□□ |

□□□□

| HTTP□□ | □□□□ | □□ |
| --- | --- | --- |
| 400 | - | □□□□□□□□□□□□□□ |
| 429 | `RateLimitExceeded` | □□□□□□□□□□IP□□□□□□□□ |
| 503 | `NoInventory` | □□□□□□□□eSIM |
| 500 | - | □□□□□□□□ |

□□□□□□□□

```
{
  "result": "Failed",
  "reason": "Error description",
  "error_type": "ErrorType"
}
```

□□□□□□□

□□□□□Mailjet□□□□□□□□□□eSIM□□□□□□□□

- ICCID
- □□□□□□□□`itemtext2`□□□□
- □□□□/LPA□□□□□□□□`itemtext3`□`management_url`□□□□
- □□□□□□□

□`crm_config.yaml`□□□Mailjet□□□

```
mailjet:
  api_crmCommunicationEsimDelivery:
    from_email: "support@aimobile.ac"
    from_name: "Example Mobile"
    template_id: 1234567
    subject: "Your eSIM is Ready"
```

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|---|---|---|---|
| `from_email` | □□□ | □ | □□□□□□□□□□ |
| `from_name` | □□□ | □ | □□□□□□□□ |
| `template_id` | □□ | □ | Mailjet□□ID□□□□□□□□□□□□□□□HTML□□□□□ |
| `subject` | □□□ | □ | □□□□□□□□ |

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□HTML□□□□□

- □□□□□□□□
- eSIM□□□□□□□□□□□□□
- □□□□□□□□□
- □□iOS□Android□□□□□□□□□

□□□□□□

□□eSIM□□□□□□□□□□□□□□□□□□□

- □□□□□`esim_request`
- □□ID□□□□□□□□
- □□□□□□□□
- □□□□□□

□□□□□□□□eSIM□□□□□□□□

**4. HSS□□eSIM□□□□**

HSS AuC□□□□□□□□□eSIM□□□`esim: true`□□□

```
{
  "esim": true,
  "lpa": "LPA:1$smdp.example.com$ACTIVATION-CODE-ABC123XYZ",
  "iccid": "89612345678901234567",
  "imsi": "310120123456790",
  "ki": "00112233445566778899AABBCCDDEEFF",
  "opc": "FFEEDDCCBBAA99887766554433221100",
  "pin1": "1234",
  "pin2": "5678",
  "puk1": "12345678",
  "puk2": "87654321",
  "batch_name": "eSIM_Batch_2024_Q1",
  "sim_vendor": "Thales"
}
```

## eSIM□□□□

eSIM□□□eSIM□□□□□□□□□

□□□□□ `/OmniCRM-API/Provisioners/customer_product_creation/import_keys_esim.py`

□□□□□

1. □□□□□□□Excel□□□□□eSIM□□
2. □CSV□□□□□LPA□□□□
3. □□HSS□□□eSIM□□
4. □CRM□□□□□□□□□□
5. □eSIM□□□□□□□□□□□

□□□eSIM□□□□□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□

□□□□□SIM□□□□□□□□□□□□□□□□□□□□□□□□□□□

## SIM□□□□□

□□□SIM□□□□□□□□

```
{
  "item": "SIM Card",
  "itemtext1_label": "ICCID",
  "itemtext2_label": "IMSI",
  "itemtext3_label": "SIM Type",
  "wholesale_cost": 2.50,
  "retail_cost": 10.00
}
```

□□□□□□□□□□Ki□OPC□PIN□PUK□□□□HSS AuC□□□□□□CRM□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□itemtext1-20□□□□□□□□□□□□□□□□□□□

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- □□ - □□□□

## □□□□

□□□□inventory_items_list□□□□□□□

```
{
  "product_id": 1,
  "product_slug": "Mobile-SIM",
  "product_name": "Mobile SIM Only",
  "provisioning_play": "play_psim_only",
  "inventory_items_list": "['SIM Card', 'Mobile Number']"
}
```

□□□□□□□

1. UI□□□□□□□□□□□□□□□□□□
2. □□□□□□□SIM□□□□□eSIM□
3. □□□□□□□□□□□□
4. □□ID□□□Ansible□□
5. □□□□API□□□□□□□□□□□
6. □□□□□□□□□□

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```yaml
- name: Get SIM Card details from inventory
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: sim_inventory_response

- name: Extract SIM identifiers
  set_fact:
    iccid: "{{ sim_inventory_response.json.itemtext1 }}"
    imsi: "{{ sim_inventory_response.json.itemtext2 }}"

- name: Get AuC ID from HSS (reference to authentication
credentials)
  uri:
    url: "{{ item }}/auc/imsi/{{ imsi }}"
    method: GET
  loop: "{{ hss_peers }}"
  register: auc_response

- name: Extract AuC ID
  set_fact:
    auc_id: "{{ auc_response.results[0].json.auc_id }}"

# ... provision to HSS/IMS/OCS ...

- name: Assign SIM to customer
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: PATCH
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      customer_id: "{{ customer_id }}"
      service_id: "{{ service_id }}"
      item_state: "Assigned"
```

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- SIM□□□□□□□□□□
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- □□□□□□□□□□□□□□□□□□□□SIM

# □□□□□SIM□□

OmniCRM□□□□□□□□□□□□□□□□□□□□□□□□SIM□□eSIM□□□□□□□□□□

## □□□□□□

**1.** □□□□□□

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- □□□□□□

**2. SIM□□□□**

□□□□□□□□□□SIM□□□□□□□□

```
GET /auth/self-signup/validate-itemtext1/{sim_number}
```

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**3.** □□**SIM**□□□□□□□□**SIM**□

□□□□□□SIM□□□□□□□□□□□

```
def _populate_base_plan_inventory(sim_number, plan):
    if sim_number:
        # □□□□□SIM - □□□□□
        sim_inventory = get_inventory_by_itemtext1(session,
sim_number, None)
        if not sim_inventory:
            # □□□□□□□□□□□□□□□□□□
            service = get_inactive_service_by_sim(sim_number)
            if service:
                sim_inventory =
get_sim_for_service(service.service_id)
    else:
        # □□□□□□□□□□SIM
        sim_inventory =
get_first_available_inventory_by_item_name(
            session,
            "SIM Card",
            filters={"item_state": ["New"], "customer_id": [None]}
        )

    # □□ICCID□MSISDN
    iccid = sim_inventory.itemtext1

    # □□□□□□□□
    number_inventory = get_first_available_inventory_by_item_name(
        session,
        "Mobile Number"
    )
    msisdn = number_inventory.itemtext1

    return {
        "SIM Card": sim_inventory.inventory_id,
        "Mobile Number": number_inventory.inventory_id
    }
```

**4. □□□□□□□**

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```
def _post_signup_tasks(customer_id, plan, payment_method):
    # 1. □□□□□□□
    save_stripe_payment_method(customer_id, payment_method)

    # 2. □□□□□□□
    charge_customer_card(customer_id, plan.retail_setup_cost)

    # 3. □□□□□□□□JWT□□□
    tokens = login_customer(customer_id)

    # 4. □□□□□□SIM□□□□□□□
    inventory_vars = _populate_base_plan_inventory(sim_number,
plan)

    # 5. □□□□□□□
    provision_vars = {
        "product_id": plan.product_id,
        "customer_id": customer_id,
        **inventory_vars  # □□SIM□□□□□□□ID
    }

    # □□□□□□□□□□
    if plan.addon_chain:
        provision_vars["addon_chain"] = plan.addon_chain

    provision_id = create_provisioning_job(provision_vars)

    # 6. □□□□□□□□
    return {
        "access_token": tokens.access_token,
        "refresh_token": tokens.refresh_token,
        "customer_id": customer_id,
        "provision_id": provision_id
    }
```

**5. □□□□□□□□□□□**

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- □□**SIM**□□□□□□□□□□□□□□□□□□□□□□□□
- **eSIM**□□□□□□□□eSIM□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

**6.** □□□□□□□□□□

□□□□□□JWT□□□□□□□□□□□□

```
{
  "sub": "customer_123",
  "signup_process": true,
  "permissions": ["VIEW_OWN_PROVISION", "UPDATE_OWN_INVENTORY"]
}
```

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- □□□□□□□□□□□□SIM

## □□□□□□□

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# □□Ansible□□□

□□SIM□□□□Ansible□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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# □□SIM□□□□

□□□ `/OmniCRM-API/Provisioners/plays/play_psim_only.yaml`

□□□□SIM□□□□□□□eSIM□□□□□□□□□□□□□

- □□□□□□□□□□
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```yaml
- name: OmniCore Service Provisioning 2024
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: Main provisioning block
      block:
        # --- PRE-PROVISIONING (Lines 240-396) ---
        - name: Get SIM information from inventory
          # Retrieves IMSI, ICCID, etc.

        - name: Validate IMSI length
          # Must be exactly 15 digits

        - name: Check if IMSI exists in HSS
          # Prevents duplicate provisioning

        - name: Get AuC ID for IMSI
          # Retrieves auc_id reference from HSS

        # --- HSS PROVISIONING (Lines 398-534) ---
        - name: Create/Update HSS Subscriber
          # Provisions to all HSS peers

        - name: Create IMS Subscriber
          # Enables voice calling

        # --- OCS SETUP (Lines 536-837) ---
        - name: Create ENUM entry
          # E.164 number mapping

        - name: Create FilterS rule
          # Account identification

        - name: Create AttributeS profile
          # IMSI/MSISDN mapping

        - name: Create ResourceS profile
          # Concurrent session limits

        - name: Create OCS account
          # Billing account creation
```

```
    # --- SERVICE & INVENTORY (Lines 865-946) ---
    - name: Create service record
      # In CRM database

    - name: Assign SIM to service
      # Update inventory

    - name: Send welcome SMS
      # Customer notification

  rescue:
    # --- CLEANUP/DEPROVISIONING (Lines 975-1562) ---
    - name: Return inventory to pool
      # Reset customer_id, service_id to null

    - name: Delete OCS account
      # Remove billing account

    - name: Remove HSS subscribers
      # Or set to dormant state

    - name: Determine success/failure
      assert:
        that:
          - action == "deprovision"
```

## □□□□□□

**1.** □□□□□

```yaml
- name: Get SIM information from CRM inventory
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: api_response_sim

- name: Extract and validate IMSI
  set_fact:
    imsi: "{{ api_response_sim.json.itemtext2 }}"

- name: Validate IMSI format
  assert:
    that:
      - imsi | length == 15
      - imsi is match('^[0-9]+$')
    fail_msg: "IMSI must be exactly 15 digits"
```

**2. □HSS□□AuC ID**

```yaml
- name: Get AuC ID for IMSI from HSS
  uri:
    url: "{{ item }}/auc/imsi/{{ imsi }}"
    method: GET
  loop: "{{ crm_config.hss.hss_peers }}"
  register: auc_lookup

- name: Extract auc_id from first HSS response
  set_fact:
    auc_id: "{{ auc_lookup.results[0].json.auc_id }}"
```

**3. HSS□□□□**

```yaml
- name: Create subscriber in each HSS peer
  uri:
    url: "{{ item }}/subscriber/"
    method: PUT
    body_format: json
    body:
      enabled: true
      roaming_enabled: true
      auc_id: "{{ auc_id }}"
      msisdn: "{{ phone_number }}"
      imsi: "{{ imsi }}"
      ue_ambr_dl: 9999999  # □□□□□□
      ue_ambr_ul: 9999999  # □□□□□□
      apn_list: "1,2,3"
      default_apn: 1
    status_code: [200, 201]
  loop: "{{ crm_config.hss.hss_peers }}"
  register: hss_responses
```

**4. IMS□□□□□□□□**

```
- name: Create IMS subscriber for voice services
  uri:
    url: "{{ item }}/ims_subscriber/"
    method: PUT
    body_format: json
    body:
      imsi: "{{ imsi }}"
      msisdn: "{{ phone_number }}"
      msisdn_list: "{{ phone_number }}"
      ifc_path: "default_ifc.xml"
      sh_profile: |
        <?xml version="1.0"?>
        <IMSSubscription>
          <PrivateID>{{ imsi }}@ims.mnc{{ mnc }}.mcc{{ mcc
}}.3gppnetwork.org</PrivateID>
          <ServiceProfile>
            <PublicIdentity>
              <Identity>sip:{{ phone_number }}@ims.mnc{{ mnc
}}.mcc{{ mcc }}.3gppnetwork.org</Identity>
            </PublicIdentity>
          </ServiceProfile>
        </IMSSubscription>
    status_code: [200, 201]
  loop: "{{ crm_config.hss.hss_peers }}"
```

**5. OCS□□□□**

```yaml
# □□□□□□□□□□□□IMSI/MSISDN□□□□□
- name: Create FilterS for IMSI identification
  uri:
    url: "{{ crm_config.ocs.ocsApi }}/jsonrpc"
    method: POST
    body_format: json
    body:
      method: "ApierV1.SetFilter"
      params:
        - ID: "FILTER_IMSI_{{ service_uuid }}"
          Type: "*string"
          Element: "~*req.OriginHost"
          Values: ["{{ imsi }}"]

# □□□□□□□□□□□□IMSI□□□□□□□
- name: Create AttributeS profile
  uri:
    url: "{{ crm_config.ocs.ocsApi }}/jsonrpc"
    method: POST
    body_format: json
    body:
      method: "ApierV1.SetAttributeProfile"
      params:
        - ID: "ATTR_ACCOUNT_{{ service_uuid }}"
          FilterIDs: ["FILTER_IMSI_{{ service_uuid }}"]
          Attributes:
            - Path: "*req.Account"
              Value: "{{ service_uuid }}"

# □□□□□□□
- name: Create OCS account
  uri:
    url: "{{ crm_config.ocs.ocsApi }}/jsonrpc"
    method: POST
    body_format: json
    body:
      method: "ApierV2.SetAccount"
      params:
        - Tenant: "{{ crm_config.ocs.ocsTenant }}"
          Account: "{{ service_uuid }}"
          ActionPlanIds: []
          ExtraOptions:
            AllowNegative: false
```

```
            Disabled: false

# □□□□□□
- name: Add initial monetary balance
  uri:
    url: "{{ crm_config.ocs.ocsApi }}/jsonrpc"
    method: POST
    body_format: json
    body:
      method: "ApierV1.AddBalance"
      params:
        - Tenant: "{{ crm_config.ocs.ocsTenant }}"
          Account: "{{ service_uuid }}"
          BalanceType: "*monetary"
          Balance:
            Value: 0
            ExpiryTime: "+8760h"  # 1□
```

**6. □□□□**

```
- name: Create service record in CRM
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/service/"
    method: PUT
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      customer_id: "{{ customer_id }}"
      product_id: "{{ product_id }}"
      service_name: "Mobile Service - {{ phone_number }}"
      service_uuid: "{{ service_uuid }}"
      service_status: "Active"
      retail_cost: "{{ monthly_cost }}"
    status_code: 200
  register: service_creation_response

- name: Extract service_id
  set_fact:
    service_id: "{{ service_creation_response.json.service_id }}"
```

**7.** □□□□

```
- name: Assign SIM card to customer and service
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_sim_card }}"
    method: PATCH
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      customer_id: "{{ customer_id }}"
      service_id: "{{ service_id }}"
      item_state: "Assigned"
      sold_date: "{{ ansible_date_time.iso8601 }}"

- name: Assign phone number to customer and service
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ inventory_id_phone_number }}"
    method: PATCH
    headers:
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      customer_id: "{{ customer_id }}"
      service_id: "{{ service_id }}"
      item_state: "Assigned"
      sold_date: "{{ ansible_date_time.iso8601 }}"
```

## □□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□Ansible□`rescue`□□

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```yaml
rescue:
  # □□□□□□□□□□□□□□
  # 1. □□□□□□□□□□□□□□□□□
  # 2. action == "deprovision"□□□□□□

  - name: Get inventory items linked to service
    uri:
      url: "{{ crm_config.crm.base_url
}}/crm/inventory/customer_id/{{ customer_id }}"
      method: GET
      headers:
        Authorization: "Bearer {{ access_token }}"
    register: inventory_items
    ignore_errors: true

  - name: Return inventory to available pool
    uri:
      url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ item.inventory_id }}"
      method: PATCH
      headers:
        Authorization: "Bearer {{ access_token }}"
      body_format: json
      body:
        customer_id: null
        service_id: null
        item_state: "Used"
    loop: "{{ inventory_items.json.data }}"
    when: inventory_items.json.data is defined
    ignore_errors: true

  - name: Delete OCS account
    uri:
      url: "{{ crm_config.ocs.ocsApi }}/jsonrpc"
      method: POST
      body_format: json
      body:
        method: "ApierV1.RemoveAccount"
        params:
          - Tenant: "{{ crm_config.ocs.ocsTenant }}"
            Account: "{{ service_uuid }}"
    ignore_errors: true
```

```
  - name: Delete or disable HSS subscriber
    uri:
      url: "{{ item.key }}/subscriber/{{ item.value.subscriber_id
}}"
      method: DELETE
    loop: "{{ hss_subscriber_data | dict2items }}"
    when: deprovision_subscriber | default(false) | bool
    ignore_errors: true

  # □□□□□□□□□□□□
  - name: Determine if this was intentional deprovision or failed
provision
    assert:
      that:
        - action == "deprovision"
      fail_msg: "Provisioning failed and rollback completed"
      success_msg: "Deprovisioning completed successfully"
```

□□□□

- `ignore_errors: true`□□□□□□□□□□□□□□□□□□
- □□`action == "deprovision"`□□□□□□□□□0 = □□□
- □□□□□`action`□□□□□□□□□2 = □□□□□
- □□□□□□□□□□□□□□□□□□□□□□□

# □□□SIM□□□□□

□□□□□□□ `play_local_mobile_sim.yaml` - □□□□HSS/OCS□□□□□□□

**MSISDN**□□□ `play_swap_msisdn.yaml` - □□□□□□□□□□□□□□

□□/□□□□□

- `play_topup_monetary.yaml` - □□□□□□
- `play_topup_no_charge.yaml` - □□□□□□/□□
- `play_topup_dongle.yaml` - □□□□/□□□□□□

# HSS□IMS□□

OmniCRM□□□□□□□□□□□□HSS□□□□□□□□□□□□□□□□□□

## HSS□□

□□□ `/OmniCRM-API/Provisioners/hss.py`

□□□□□

```
def ProvisionMobileSIM(json_data, hss_urls):
    """
    Provisions a mobile SIM to HSS and IMS

    Args:
        json_data: Dict with IMSI, MSISDN, authentication
credentials
        hss_urls: List of HSS peer URLs

    Returns:
        Dict with subscriber IDs from each HSS peer
    """
    # Create HSS subscriber (for data)
    # Create IMS subscriber (for voice)
    # Return subscriber IDs for tracking

def get_subscriber_info_msisdn(msisdn, hss_urls):
    """
    Retrieves subscriber details by phone number

    Args:
        msisdn: Phone number to lookup
        hss_urls: List of HSS peer URLs

    Returns:
        Subscriber information from HSS
    """
```

# □HSS□□

OmniCRM□□□□□HSS□□□□□□□□□□□□

```yaml
# crm_config.yaml
hss:
  hss_peers:
    - "http://10.12.64.140:8080"
    - "http://10.12.64.141:8080"
  apn_list: "1,2,3"
  default_apn: 1
```

□□□□□□□□□□HSS□□□□□□□□□

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- □□□□□□□

# □□□□□AuC□

AuC□□□□□□□□□□□□□□□□□□□□□□□**auc_id**□

**□□IMSI□AuC ID□**

```
GET /auc/imsi/{imsi}
```

□□□

```
{
  "auc_id": 12345,
  "imsi": "310120123456789",
  "iccid": "89612345678901234 56",
  "esim": false,
  "lpa": null
}
```

□□eSIM□`esim`□□□`true`□`lpa`□□□□□□□□□□□□□□

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# OCS□□

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## OCS□□

□□□ `/OmniCRM-API/Provisioners/ocs.py`

□□□

```yaml
# crm_config.yaml
ocs:
  cgrates: "10.64.12.160:2080"
  ocsTenant: "mnc001.mcc001.3gppnetwork.org"
  ocsApi: "http://10.64.12.160:2080"
```

## SIM□□□OCS□□

**1.** □□□ **-** □□□□

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```
{
  "ID": "FILTER_IMSI_Service_abc123",
  "Type": "*string",
  "Element": "~*req.OriginHost",
  "Values": ["310120123456789"]
}
```

**2.** □□ **-** □□□□

□□□IMSI□□□□□□□□□

```
{
  "ID": "ATTR_ACCOUNT_Service_abc123",
  "FilterIDs": ["FILTER_IMSI_Service_abc123"],
  "Attributes": [
    {
      "Path": "*req.Account",
      "Value": "Service_abc123"
    },
    {
      "Path": "*req.Bandwidth",
      "Value": "100000000"  // 100 Mbps
    }
  ]
}
```

**3. □□ - □□□□**

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```
{
  "ID": "RES_SESSIONS_Service_abc123",
  "FilterIDs": ["FILTER_IMSI_Service_abc123"],
  "Limit": 5,  // □□5□□□□□
  "UsageTTL": "-1"
}
```

**4. □□ - □□□□**

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```
{
  "ID": "STATS_Service_abc123",
  "FilterIDs": ["FILTER_IMSI_Service_abc123"],
  "Metrics": [
    "*sum#~*req.Usage",
    "*tcc"  // □□□□□
  ]
}
```

**5. □□□□ - □□□□**

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```
{
  "Id": "ActionPlan_Service_abc123_Monthly",
  "ActionsId": "Action_Add_Monthly_Data",
  "Timing": {
    "MonthDays": [1],  // □□1□
    "Time": "00:00:00Z"
  }
}
```

## OCS API□□

**ocs.py□□□□□□□**

```
async def async_get_balance(account, server, tenant):
    """□□□□□□□□□"""

async def async_topup_dongle(tenant, account, server, days):
    """□□□□□□□□□□□□"""

def Get_Account_Status(account, server, tenant):
    """□□□□□□□□□"""

def CGRateS_API_Call(method, params, server, tenant):
    """□□CGRateS JSON-RPC API□□"""
```

# SIM□□□□

OmniCRM□□□□□□□CRM□□□HSS□□□□□□□

## □□□□

□□□ `/OmniCRM-API/Provisioners/hss_reconcile.py`

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- □□HSS□□□□□□□□□SIM□□□□
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- □□MSISDN□□
- □□HTML□□

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1. **HSS□□□□SIM□**
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```
python hss_reconcile.py
```

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# SIM□□□□□□□

## □□□□□□□□□□

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□□□**eSIM**□□□□□□□

- □□□ `management_url`□□□□□□LPA□□
- □□□□□□ □□eSIM□□□□□□□□□`management_url`
- □□□ □□□`LPA:1$server$activation-code`

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# □□□□

**1.** □□□□□□□

```
GET /crm/provision/provision_id/{id}
```

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**2.** □□**HSS**□□□

```
GET {hss_url}/subscriber/msisdn/{phone_number}
```

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**3.** □□**OCS**□□□

```
{
  "method": "ApierV2.GetAccount",
  "params": [
    {
      "Tenant": "mnc001.mcc001.3gppnetwork.org",
      "Account": "Service_abc123"
    }
  ]
}
```

**4.** □□□□□□□

```
GET /crm/inventory/?filters={"itemtext2":["310120123456789"]}
```

□IMSI□□□□□□□□□□□□□□□□□□□□

**5. □□Ansible□□□**

□□`/var/log/ansible/`□□□□□□□□□□□□□□□□□□□□□□□□□□

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## SIM□□□□

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## eSIM□□

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```
{
  "Path": "*req.Account",
  "Type": "*constant",
  "Value": [{"Rules": "Mobile_SIM_474a380a"}]
}
```

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□□□ **ID** □□□ `FLTR_ACCOUNT_{service_uuid}`

□□□ □□ UUID □ `Mobile_SIM_c2880638` □□□□□□□ ID □ `FLTR_ACCOUNT_Mobile_SIM_c2880638`

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  - `*destinations` - □□□□□□□
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{
  "Element": "~*req.Account",
  "Type": "*string",
  "Values": ["Mobile_SIM_474a380a"]
}
```

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## CGRateS API □□

□□ CGRateS □□□□□□□□□□□□□□□□ OmniCRM API □□□□□

□□□ `POST /crm/ocs/proxy`

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- `method` - CGRateS API □□□□□□`APIerSv1.GetAttributeProfile`□
- `params` - □□□□□□□□
- `customer_id` - □□ ID□□□□□□□□
- `service_id` - □□ ID□□□□□□□□

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- `tenant` - CGRateS □□□□□□□□□□

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```
{
  "method": "APIerSv1.GetAttributeProfile",
  "params": [{"ID": "ATTR_ACCOUNT_Mobile_SIM_c2880638"}],
  "customer_id": 123,
  "service_id": 456
}
```

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□□□□□□ OmniCRM □□□□ (`crm_config.yaml`) □□ `ocs.ocsTenant` □□□□□□□□□ CGRateS □□□□□□□□□□□□□□□□□□□□□□□□

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□□ `cgrates_api_access` □□□□□□□□□□ `admin` □□□

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- `concepts_products_and_services` - □□□□□□□
- `basics_customers` - □□□

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```
{
  "BalanceMap": {
    "*data": [
      {
        "ID": "monthly_data_20GB",
        "Value": 13421772800,
        "ExpiryTime": "2025-01-25T23:59:59Z",
        "Weight": 10
      }
    ],
    "*voice": [
      {
        "ID": "monthly_voice_500min",
        "Value": 7500000000000,
        "ExpiryTime": "2025-01-25T23:59:59Z",
        "Weight": 10
      }
    ],
    "*sms": [
      {
        "ID": "monthly_sms_250",
        "Value": 250,
        "ExpiryTime": "2025-01-25T23:59:59Z",
        "Weight": 10
      }
    ],
    "*monetary": [
      {
        "ID": "prepaid_credit",
        "Value": 1550,
        "ExpiryTime": "2025-02-25T23:59:59Z",
        "Weight": 10
      }
    ]
  }
}
```


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```
{
  "ActionPlanId":
"ProductID_MonthlyPlan__ProductName_20GB_Mobile__ActionPlan_Monthly_F
  "NextExecTime": "2025-02-01T00:00:00+00:00",
  "ActionName_hr": "□□□□",
  "PlanName": "20GB □□",
  "ActionFrequency_hr": "□□□□",
  "custom_NextExecTime_hr": "□ 22 □□"
}
```

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- CGRateS □□□□□□□□ - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- CGRateS □□□ - □□□ PLMN □□□□□□□□□□□□□□
- `features_topup_recharge` - □□□□□□□□□□
- `csa_service_management` - □□□□
- `csa_modify` - □□□□□□□□□□□□
- `concepts_products_and_services` - □□□□

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□□ **API**□

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□□□ `POST /auth/impersonate`

□□□□□ `can_impersonate` □ `admin`

□□□

```
{
  "user_id": 42
}
```

□□□

```
{
  "success": true,
  "impersonating_user_id": 1,
  "target_user_id": 42,
  "impersonation_start": "2025-01-04T15:30:00Z",
  "access_token": "new_token_for_impersonated_user",
  "refresh_token": "new_refresh_token"
}
```

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  - `impersonating_user_id`□□□□□□□□ ID
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  - □ `ImpersonationLog` □□□□□□□□□□□□□

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**□□ Web UI□**

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**□□ API□**

□□□ `POST /auth/stop_impersonation`

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```
{
  "success": true,
  "impersonation_end": "2025-01-04T15:45:00Z",
  "duration_seconds": 900,
  "access_token": "your_original_token",
  "refresh_token": "your_original_refresh_token"
}
```

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□□□□□□□□□□ `ImpersonationLog` □□□□□□

- **impersonating_user_id**□□□□□□□□
- **target_user_id**□□□□□□□□□
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- **impersonation_duration**□□□□□□□□□□□

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`GET /auth/impersonation_logs?user_id={user_id}&start_date={date}&end_date={date}`

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# □□□□□ CGRateS □□

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□□□□ CGRateS □□□□□□□□ CRM □ OCS□□□□□□□□□□ Python □□□□□□□□□

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1. **CGRateS/OCS** - □□□□□□□□□□□□□□□□□□□
2. **OmniCRM** - □□□□□□□□□□□□□□□□□□□

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**CGRateS** □□□□□□□□□□□□□□□□□ □□□□□□□ □□□□□□□□□□ □□ OmniCRM □□□□ CGRateS □□ □□□□□□□

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□□□ **CRM** □□ - □□□□□□ OmniCRM □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ CGRateS □□□□□□□ CGRateS □□ □□□ CGRateS □□□□□□□□ □□□□□□□□□□□□□□□□

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## □□ 1□□ CRM API □□□□□□

```python
import requests
import json

crm_url = 'https://crm.example.com/'
session = requests.Session()

headers = {
    "Content-Type": "application/json"
}

# □□□□□□□□□
response = session.post(crm_url + '/crm/auth/login', json={
    "email": "admin@example.com",
    "password": "your_password"
}, headers=headers)

assert response.status_code == 200
headers['Authorization'] = 'Bearer ' + response.json()['token']
print("□ CRM □□□□□□")
```

## □□ 2□□□□□□□□□□□

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```
inventory_list_new = []

# □□ SIM □□□□□
inventory_list_new.append({
    "item": "SIM Card",
    "itemtext1_label": "ICCID",
    "itemtext2_label": "IMSI",
    "wholesale_cost": 0.2,
    "retail_cost": 1,
    "allow_dropdown_staff": True,
    "allow_dropdown_customer": True,
    "icon": "fa-solid fa-sim-card"
})

# □□□□□□□□□□□
inventory_list_new.append({
    "item": "Mobile Number",
    "itemtext1_label": "E.164 Mobile Number",
    "itemtext2_label": "Type",
    "wholesale_cost": 0.2,
    "retail_cost": 3,
    "icon": "fa-solid fa-phone"
})

# □□□□□□□□□□□□□□□□□□
for inventory_template in inventory_list_new:
    # □□□□□□
    inventory_list_existing = session.get(
        crm_url + '/crm/inventory/item_template/',
        headers=headers
    )

    # □□□□□□□□□
    if inventory_template['item'] in [x['item'] for x in
inventory_list_existing.json()]:
        # □□□□□□
        inventory_template_id = [
            x['inventory_template_id']
            for x in inventory_list_existing.json()
            if x['item'] == inventory_template['item']
        ][0]

        response = session.patch(
```

```
            crm_url + '/crm/inventory/item_template/' +
str(inventory_template_id),
            json=inventory_template,
            headers=headers
        )
        assert response.status_code == 200
        print(f"□□□□□□□□{inventory_template['item']}")
    else:
        # □□□□□
        response = session.put(
            crm_url + '/crm/inventory/item_template',
            json=inventory_template,
            headers=headers
        )
        assert response.status_code == 200
        print(f"□□□□□□□□{inventory_template['item']}")
```

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- **item□□□□** - □□□□
- **itemtext1_label** - □□□□□□□□□□□□
- **itemtext2_label** - □□□□□□□□□□□□
- **wholesale_cost** - □□□□
- **retail_cost** - □□□□□□□
- **allow_dropdown_staff** - □□□□□□□□□□
- **allow_dropdown_customer** - □□□□□□□□□□
- **icon** - Font Awesome □□□

## □□ 3□□□□ CGRateS

```
import cgrateshttpapi
import time

OCS_Obj = cgrateshttpapi.CGRateS("ocs.example.com", "2080")

tenant = "your_tenant_name"
tpid = str(tenant) + "_" + str(int(time.time()))
```

# □□ 4□□ CGRateS □□□□□□

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2. **PLMN** □□□ - □□□□□□□□□□□□□□□□□□□`Dest_PLMN_OnNet`□ `Dest_PLMN_US_Verizon`□

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- □□/**SMS** □□ → □□□□□□□□□□□□□□□□
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- PLMN □□□□□□□□□□□□□□
- PLMN □□□□□`mccXXX.mncYYY`□
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# □□ 5□□□ CGRateS □□

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- `*topup` - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- `*topup_reset` - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

## □□ 6□□ CRM □□□□□□

□□□□□□□ CGRateS □□□□□□□ CRM □□□□□□□□□□

□□□□□□ **SIM** □□

```
product_list_new = []

product_list_new.append({
    "category": "standalone",
    "provisioning_play": "play_psim_only",
    "relies_on_list": "",
    "contract_days": 0,
    "retail_cost": 0,
    "retail_setup_cost": 0,
    "product_slug": "Mobile-SIM",
    "product_name": "□□ SIM □",
    "comment": "□□□□□□□□ SIM □",
    "provisioning_json_vars": "{\"iccid\" : \"\", \"msisdn\" :
\"\"}",
    "terms": "□□□ 6 □□□□□□□□□□□□ 12 □□□□□□□□□□□□□□□□□□□□",
    "service_type": "mobile",
    "residential": True,
    "business": True,
    "enabled": True,
    "inventory_items_list": "['SIM Card', 'Mobile Number']",
    "icon": "fa-solid fa-sim-card",
    "features_list": "['□□□□□□□□□□ (61xxx)', '□□□□□□', '□□□□□']",
    "wholesale_cost": 3,
    "wholesale_setup_cost": 1,
    "customer_can_purchase": True
})
```

□□□□□□□□□□

```
product_list_new.append({
    "category": "addon",
    "provisioning_play": "play_topup_charge_then_action",
    "relies_on_list": "",
    "contract_days": 30,
    "retail_cost": 59.00,
    "retail_setup_cost": 0,
    "product_slug": "au-premium-plan-1",  # □□□ Action_au-premium-plan-1
    "product_name": "□□□□□□□□□ 1",
    "comment": "□□□□□ 100GB □□□3000 □□□3000 SMS□6GB □□□□",
    "provisioning_json_vars": "",
    "terms": "□□□□□□□□ 30 □□□□□□□",
    "service_type": "mobile",
    "residential": True,
    "business": True,
    "enabled": True,
    "icon": "fa-solid fa-mobile",
    "features_list": "['□□□□□ 100GB □□', '□□□□□ 3000 □□', '□□□□□ 3000 SMS', '6GB □□□□']",
    "wholesale_cost": 45.00,
    "wholesale_setup_cost": 0,
    "auto_renew": "True",
    "customer_can_purchase": True
})
```

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```
product_list_new.append({
    "category": "addon",
    "provisioning_play": "play_topup_charge_then_action",
    "relies_on_list": "",
    "contract_days": 0,
    "retail_cost": 30,
    "retail_setup_cost": 0,
    "product_slug": "au-data-addon-20gb",  # □□□ Action_au-data-
addon-20gb
    "product_name": "□□□□□□□□ 20GB",
    "comment": "□□□□□ 20GB □□",
    "provisioning_json_vars": "",
    "terms": "□□□□□□□□□□□□",
    "service_type": "mobile",
    "residential": True,
    "business": True,
    "enabled": True,
    "icon": "fa-solid fa-mobile",
    "features_list": "['□□□□□ 20GB □□']",
    "wholesale_cost": 22,
    "wholesale_setup_cost": 0,
    "auto_renew": "False",
    "customer_can_purchase": True
})
```

□□□□□□□

- **category**□□□□ - □□□□□
  - `standalone` - □□□□□□□□□□□□□
  - `addon` - □□□□□□□
  - `bundle` - □□□□□□
- **provisioning_play**□□□□ - □□□□ Ansible playbook□□□□ `play_topup_charge_then_action`□`play_simple_service`□
- **relies_on_list** - □□□□□□ product_slugs □□□□□□□
- **contract_days** - □□□□□0 = □□□□30 = □□□
- **retail_cost**□□□□ - □□□□□□□/□□□□
- **retail_setup_cost** - □□□□□□□□□□□□□
- **product_slug**□□□□ - □□□ **CGRateS** □□□□□□□□□□□□`Action_{product_slug}`□
- **product_name**□□□□ - □□□□

- **comment** - □□□□
- **provisioning_json_vars** - □□□ playbook □□□□ JSON □□□
- **terms** - □□□□□□□
- **service_type** - □□□□□□□□□□□□□□□□□□
- **residential** - □□□□□□□□□
- **business** - □□□□□□□□□
- **enabled** - □□□□□□□□□□□□□
- **inventory_items_list** - □□□□□□□ Python □□□□□
- **icon** - Font Awesome □□□
- **features_list** - □□□□□ Python □□□□□
- **wholesale_cost** - □□□□□□
- **wholesale_setup_cost** - □□□□□□□
- **auto_renew** - □□□□□ "True" □ "False" □□□
- **customer_can_purchase** - □□□□□□□□□□□□□□□

□□□□□□□□□□□

## □□ 7□□□ API □□□□□□□

```
# □□□□□□□
product_list_existing = session.get(crm_url + '/crm/product',
headers=headers)
existing_products = product_list_existing.json()

# □□□□□□□
for product in product_list_new:
    print(f"□□□□□□{product['product_slug']}")

    # □□□□□□□□□□
    if product['product_slug'] in [x['product_slug'] for x in
existing_products]:
        print(f"□□□□□□□{product['product_slug']}")

        # □□□□□□□□ product_id
        product_id = [
            x['product_id']
            for x in existing_products
            if x['product_slug'] == product['product_slug']
        ][0]

        product['product_id'] = product_id

        # □□□□□□□
        response = session.patch(
            crm_url + '/crm/product/' + str(product_id),
            json=product,
            headers=headers
        )
        print(f"□□□{response.status_code}")
        assert response.status_code == 200
        print(f"□□□□□□{product['product_slug']}")
    else:
        # □□□□□
        print(f"□□□□□□□{product['product_slug']}")
        response = session.put(
            crm_url + '/crm/product',
            json=product,
            headers=headers
        )
        print(f"□□□{response.status_code}")
```

```
        assert response.status_code == 200
        print(f"□□□□□{product['product_slug']}")
```

# □□□□□□□□

CRM □□□ CGRateS □□□□□□□□□□ □□□□□

```
# □ CGRateS □
ActionsId = "Action_au-premium-plan-1"

# □ CRM □
product_slug = "au-premium-plan-1"

# □ playbook □□□□□□□
cgr_action_name = "Action_" + product_slug
# □□□"Action_au-premium-plan-1"
```

## Playbooks □□□□□□

□□□ □□ `ExecuteAction` □□□□□□□□□□□□□□□□□□□□ playbook □□□ `SetBalance` □□□ CGRateS API□□□□`OmniCRM-API/Provisioners/plays/play_topup_charge_then_action.yaml` □□ ExecuteAction □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□Playbooks□□□□

□□□□□□□□□□□□□playbook □ product_slug □□□□□□□

```
# □ play_topup_charge_then_action.yaml □
- name: □□ cgr_action_name □□
  set_fact:
    cgr_action_name: "Action_{{
api_response_product.json.product_slug }}"

# □□□□
- name: □□ CGRateS □□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "APIerSv1.ExecuteAction",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "ActionsId": "{{ cgr_action_name }}"
        }]
      }
```

□□□□□□□ □□ □□□ **CGRateS** □□□□□□□□□□□□□□□ "□□□□□" □□□

□□□□□Ansible Playbooks □□

# □□□□□□□□□□

□□□□□□□□□□□□□□□ "50GB □□□"□

## 1. □ CGRateS □□□□□

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- **ActionsId**□`"Action_50gb-data-pack"`□□□□□ product_slug □□□
- **BalanceType**□`"*data"`
- **DestinationIDs**□`"Dest_PLMN_OnNet"`□□□□□□□□□□
- **Units**□`50 * 1024 * 1024 * 1024`□50GB □□□□□

- **Identifier**：`"*topup"`□□□□□□

## 2. □ CRM □□□□□

```
product_50gb_data = {
    "category": "addon",
    "provisioning_play": "play_topup_charge_then_action",
    "relies_on_list": "",
    "contract_days": 0,
    "retail_cost": 25.00,
    "retail_setup_cost": 0,
    "product_slug": "50gb-data-pack",  # □□□ ActionsId □□□□□
"Action_"
    "product_name": "50GB ������□",
    "comment": "□□□ 30 □□ 50GB □□□□",
    "provisioning_json_vars": "",
    "terms": "□□□ 30 □□□□□□□
```

1. □□□□ "50GB □□□"□product_slug: `50gb-data-pack`□
2. Playbook `play_topup_charge_then_action` □□
3. Playbook □□□□□□□`Action_50gb-data-pack`
4. Playbook □□ `APIerSv1.ExecuteAction`□□□ ActionsId `Action_50gb-data-pack`
5. CGRateS □□□□□□□
6. □□□□ 50GB □□

□□□□□□ Playbooks □□□□□□□

# □□□□□□

□□□□□□□□□□ CRM ◆◆□□□□□□□□□□ CGRateS □□□□□□□□□□□□□□□□□ CGRateS □□□□□□□□□

## □□ 1□□□□□□□□

□□□ □□□□□□□□□□□□□□□□□SMS□□□

**CRM □□□**

```
{
    "product_slug": "premium-monthly-plan",  # □□□ Action_premium-monthly-plan
    "product_name": "□□□□□□□",
    "category": "addon",
    "retail_cost": 59.00,
    "auto_renew": "True",
    "contract_days": 30,
    "provisioning_play": "play_topup_charge_then_action",
    "features_list": "['100GB □□', '5000 □□', '5000 SMS', '□□□□']"
}
```

□□□ □□ `*topup_reset` □□□□□□□□□□□□ □□ 1□□□□□□□□□Python□□

## □□ 2□□□□□□□□□□□□

□□□ □□□□□□□□□□□□□□□□□□□

**CRM □□□**

```
{
    "product_slug": "10gb-addon",  # □□□ Action_10gb-addon
    "product_name": "10GB □□□□□",
    "category": "addon",
    "retail_cost": 15.00,
    "auto_renew": "False",  # □□□□□
    "contract_days": 0,
    "provisioning_play": "play_topup_charge_then_action",
    "features_list": "['10GB □□□□□□', '30 □□□□']"
}
```

□□□ □□ `*topup` □□□□□□□□□□ CGRateS □□ - □□□

## □□ 3□□□□□□□□□□□□

□□□ □□□□□□□□□□□□□□□

**CRM □□□**

```
{
    "product_slug": "fixed-50gb-monthly",  # □□□ Action_fixed-
50gb-monthly
    "product_name": "□□ 50GB □□□□",
    "category": "addon",
    "retail_cost": 35.00,
    "auto_renew": "True",
    "contract_days": 30,
    "provisioning_play": "play_topup_charge_then_action",
    "features_list": "['50GB □□', '□□□□', '□□□']"
}
```

□□□ □□ `*topup_reset` □□□□□□□□ CGRateS □□ - □□□□□

# □□□□□□□□□□□

□□□ □□□□□□□□□□□□□□□CGRateS □□□□□□□□□□□□□□□□□

- □□□□□□□□□□□ MO □ MT □□/SMS □□□□□
- □□□□□□□□2G/3G □ CAMEL□MO-MT SMS□USSD□□4G/5G □ Diameter
- □□□□□□□□□□□□□□□□□

# □□□□□□□□□□□□□□□□

```
# 1. □□□□□□□□□□□□
OCS_Obj.SendData({
    "method": "ApierV2.SetTPDestinationRate",
    "params": [{
        "TPid": tpid,
        "ID": "DR_DATA_PAYG",
        "DestinationRates": [{
            "DestinationId": "Dest_PLMN_OnNet",
            "RateId": "RT_DATA_$0_10_PER_MB",
            "RoundingMethod": "*up",
            "RoundingDecimals": 4,
            "MaxCost": 0,
            "MaxCostStrategy": ""
        }]
    }]
})

# 2. □□□□□□
OCS_Obj.SendData({
    "method": "ApierV2.SetTPRate",
    "params": [{
        "TPid": tpid,
        "ID": "RT_DATA_$0_10_PER_MB",
        "RateSlots": [{
            "ConnectFee": 0,          # □□□□
            "Rate": 0.10,             # □□□ $0.10
            "RateUnit": "1048576",    # 1 MB□1024 * 1024 □□□
            "RateIncrement": "1048576", # □ MB □□
            "GroupIntervalStart": "0s"
        }]
    }]
})

# 3. □□□□□□□□□□□□
OCS_Obj.SendData({
    "method": "ApierV2.SetTPRatingPlan",
    "params": [{
        "TPid": tpid,
        "ID": "RP_PAYG_DATA",
        "RatingPlanBindings": [{
            "DestinationRatesId": "DR_DATA_PAYG",
```

```
            "TimingId": "*any",
            "Weight": 10
        }]
    }]
})

# 4. □□□□□□□□□□□□□□□□□□□□□□□□□□□□
OCS_Obj.SendData({
    "method": "ApierV2.SetTPRatingProfile",
    "params": [{
        "TPid": tpid,
        "Tenant": tenant,
        "Category": "data",
        "Subject": "*any",  # □□□□□□□□□
        "RatingPlanActivations": [{
            "ActivationTime": "2024-01-01T00:00:00Z",
            "RatingPlanId": "RP_PAYG_DATA",
            "FallbackSubjects": ""
        }]
    }]
})

# 5. □□□□□□
OCS_Obj.SendData({
    "method": "APIerSv1.LoadTariffPlanFromStorDb",
    "params": [{
        "TPid": tpid,
        "DryRun": False,
        "Validate": True,
        "APIOpts": {}
    }]
})
```

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- □□□□□□□□□□□□□□□□□□□□□□□□□□□□ **$0.10 □ MB**
- □□□□□□□□□□□□ `*monetary` □□□□
- □□□□□ 1 MB□□□□□□□

## □□□□□□□□□

```
# □□□□□□□□□□□□□□□
OCS_Obj.SendData({
    "method": "ApierV2.SetTPRate",
    "params": [{
        "TPid": tpid,
        "ID": "RT_VOICE_DOMESTIC_$0_30_PER_MIN",
        "RateSlots": [{
            "ConnectFee": 0.15,           # $0.15 □□□□
            "Rate": 0.30,                 # □□□ $0.30
            "RateUnit": "60s",            # □□□□□
            "RateIncrement": "60s",       # □□□□□□□□□
            "GroupIntervalStart": "0s"
        }]
    }]
})

OCS_Obj.SendData({
    "method": "ApierV2.SetTPRate",
    "params": [{
        "TPid": tpid,
        "ID": "RT_VOICE_INTL_$1_50_PER_MIN",
        "RateSlots": [{
            "ConnectFee": 0.25,           # $0.25 □□□□
            "Rate": 1.50,                 # □□□ $1.50
            "RateUnit": "60s",
            "RateIncrement": "1s",        # □□□□□□□□□
            "GroupIntervalStart": "0s"
        }]
    }]
})
```

## □□□□□□□□□□

□□□□□□□□□□□□□□

```
OCS_Obj.SendData({
    "method": "APIerSv1.SetChargerProfile",
    "params": [{
        "Tenant": tenant,
        "ID": "Charger_Default",
        "FilterIDs": [],
        "AttributeIDs": ["*constant:*req.RequestType:*none"],
        "Weight": 999
    }]
})
```

□□□□□

- CGRateS □□□□□□□ - □□□□□□□□□□□□□□□□□□□□□□□□
- CGRateS □□□ - □□□□□□□ PLMN □□□

# □□□□

## 1. □□□□□□□□□□

```
# □ - □□□□□
ActionsId = "Action_premium-plan-100gb"
product_slug = "premium-plan-100gb"

# □ - □□□□□□□
ActionsId = "Action_Plan_A"
product_slug = "premium_100"
```

## 2. □□□□□□□□□□

□□□□□ CRM □□□□□□ CGRateS □□□□□□□□□□□□□□□□□□□□□□□□ playbook □□□□

## 3. □□ CDR □□□□

□□□□ `*cdrlog` □□□□□□□□□□

```
{
    "Identifier": "*cdrlog",
    "BalanceType": "*generic",
    "ExtraParameters": "
{\"Category\":\"^activation\",\"Destination\":\"Product Name\"}",
    "Weight": 80
}
```

## 4. □□□□□□□□ ID

```
# □
"BalanceId": "Premium_Data_100GB"
"BalanceId": "AU_Voice_Domestic__" + str(units)

# □
"BalanceId": "data1"
"BalanceId": "balance"
```

## 5. □□□□□□□

```
# □ - □□□□□
Units = 100 * 1024 * 1024 * 1024  # 100GB □□□□□
Units = 3000 * 60 * 1000000000    # 3000 □□□□□□□

# □ - □□□□□
Units = 107374182400
```

## 6. □□□□□□□□□

□□□□□□ = □□□□□□□□□□□□□□

```
# □□□□□□□□□□□ = □□□□□
{"Identifier": "*reset_account", "Weight": 700}
{"Identifier": "*topup_reset", "Weight": 90}
{"Identifier": "*cdrlog", "Weight": 80}

# □□□□□□□□□□□ = □□□□□
"BalanceWeight": 1200  # □□/□□□□
"BalanceWeight": 1100  # □□□□
"BalanceWeight": 1000  # □□□□
```

## 7. □□□□□□□□□□

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```
# □□
Units = 100 * 1024 * 1024  # 100MB □□□□

# □□
Units = 100 * 1024 * 1024 * 1024  # 100GB
```

# □□□□

## □□□“□□□□□”

□□□ Playbook □□□□□“□□□□□”□“ActionsId □□□”

□□□ □□□□ CGRateS □□□□□□□□□□

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1. □□□□□□□□□□□ CGRateS □□□□□□
2. □□□□□□□ `ActionsId = "Action_" + product_slug`
3. □□□□□□□□□□□

## □□□“□□□□□□□”

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□□□□ DestinationIDs □□□□□□□□□□

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1. □□□□ CGRateS □□□□□□□
2. □□□□□□□□□□□ `*any`
3. □□□□□□ ID □□□□

## □□□□□□□□□□□

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1. □□□□□□□□□□ `*topup` □ `*topup_reset` □□
2. □□ Units □□□□□□□□□ 0□
3. □□ ExpiryTime □□□□□

## □□□□□

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□□□□ □□ `*topup_reset` □□□□ `*topup`

□□□□□□

- □ `Identifier` □ `*topup_reset` □□□ `*topup`
- □□ BalanceId □□□□□□□□□□□□

□□□□□□CGRateS □□□□□□□□

# □□

□□□□□□□□□□ OmniCRM □□□□□□□ CGRateS □□□□□□□□□□□

# □□□□□□□□□□EDM□

OmniCRM □□□□□□□EDM□□□□□□□□□

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| --- | --- | --- | --- | --- |
| □□□□ | SMTP □□□Mailjet□ Mailgun□SES □□ | Jinja2 HTML □□ | `email` □□□□ + □□ + □□□□ | □□□□□□ |
| □□ | OmniMessage | `var1`–`var4` □□ | `sms` □□□□ + OmniMessage □□ | □□□□ □OmniMessage□ |

## □□□□□□□□□□

□□□□□□ HTML□□□□ □□□□□ □□□□□□□□□□□□□□ **Jinja2** □□□□□□□□□□□□□□□□□□□□□□

- `{{ first_name }}`□`{{ last_name }}`□`{{ customer_name }}`□`{{ email }}`
- □□□□□□□□ `{% if first_name %}Hi {{ first_name }}{% else %}Hello{% endif %}`

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   - □□□□□□□□□□□□□□□□ `edm.communication_categories` □□□□□□□□□□□□□□□□□□□□

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4. □□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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*OmniMessage □□□□*

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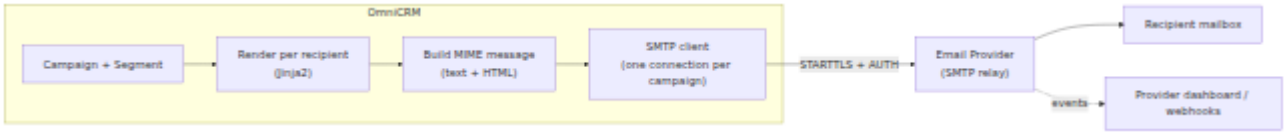


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1. □□□□□ HTML □□□□□□□□□□□□□□□□□□□□□□□□
2. □□□□ `multipart/alternative` MIME □□□□□□□□ + HTML□□
3. □□□□□□□□□□□ SMTP □□□□□□□□□
4. □□□□□□□□□□□□□□□□□□□□□□□□ `sent`□□□□□ `failed`□□

□□□□□□□□□□□□□□□`X-MJ-CustomID`□□□□ `campaign_{campaign_id}_recipient_{recipient_id}`□Mailjet □□□□ webhook □□□□□□□□□□□□□□□□□□□□□□□□

# SMTP □□□□

□□□ `crm_config.yaml` □ `mailjet.smtp` □□□□□□□□□□□□□□ Mailjet□□□□□□□□ EDM □□□□□ SMTP □□□□□□□□□□□□□□

```yaml
mailjet:
  api_key: "your-api-key"           # □□□□□□□□□ + □□□□ SMTP □□□
  api_secret: "your-api-secret"     # □□□□□□□□□ + □□□□ SMTP □□
  smtp:
    host: in-v3.mailjet.com         # SMTP □□□□□
    port: 587                       # □□□□
    use_tls: true                   # □□ STARTTLS □□□□
    use_auth: true                  # □□□□□/□□□□□□□□
    username: ''                    # □□ -> □□ mailjet api_key
    password: ''                    # □□ -> □□ mailjet api_secret
    timeout: 30                     # □□/□□□□□□□
```

## □□

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|---|---|---|---|---|
| `host` | □□□□ | □ | `in-v3.mailjet.com` | SMTP □□□□□□□□ |
| `port` | □□ | □ | `587` | □□□□□□□ `587` □□ STARTTLS□`465` □□□ TLS□□□□□□□□□ `2525`/`25`□ |
| `use_tls` | □□ | □ | `true` | □□ `true` □□□□□□□□□□ STARTTLS □□□□□□□□□□□□□□□□ `false`□ |
| `use_auth` | □□□ | □ | `true` | □□ `true` □□OmniCRM □□ `username`/`password` □□□□□□□□□□□□ □□□□□□□□□□□□□□ `false`□ |
| `username` | □□□□ | □ | *(□)* | SMTP □□□□□□□□□□**OmniCRM** □□□□ **Mailjet** □ **`api_key`**□ □□□□□ Mailjet □□□□□□□□□□□□□□□ |
| `password` | □□□□ | □ | *(□)* | SMTP □□□□□□□□□**OmniCRM** □□□□ **Mailjet** □ **`api_secret`**□ □□□□□ Mailjet □□□□□□□□□□□□□□□ |
| `timeout` | □□□ | □ | `30` | □□□□□□□□□□□ |

> □□□ `username`/`password` □□□□ Mailjet API □□□□□□□□□□□□□□□□

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□□□□□□□□□□ SMTP □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□/□□□□□□□□□□□□□□□□□□□

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## Amazon SES

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|---|---|
| □□ | `email-smtp.<region>.amazonaws.com`□□□ `email-smtp.us-east-1.amazonaws.com`□ |
| □□ | `587` / `2587`□STARTTLS□□`465` / `2465`□TLS□□`25` |
| □□□ | SES **SMTP** □□□□□ SES □□□□□□ |
| □□ | SES **SMTP** □□□□□□ AWS □□□□□□□ |

□□□ □□ □□□ □□□□□□□□□□□□ `X-SES-CONFIGURATION-SET` □□□□□□□□□□ `X-SES-MESSAGE-TAGS` □□□□□□□□□□□□□□□□□□□□

□□□ □ □□□□□□□□□□□□ `X-SMTPAPI` □□JSON `filters`□□ `opentrack`/`clicktrack`□□□ `category` □ `unique_args` □□□□□□□□□□/□□□□□□□□□□ **SendGrid** □□□ □ □□ **API** □□□ □□□ □□ **webhook** □□ OmniCRM□

## Postmark

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| □□ | `smtp.postmarkapp.com` |
| □□ | `587` / `2525` / `25` |
| □□□ | □□ □□□ **API** □□ |
| □□ | □□ □□□ **API** □□□□□□□□□□ |

□□□ □□ `X-PM-Track-Opens: true` □□□□□□□ `X-PM-Track-Links: HtmlAndText` □□ □□□□□ `X-PM-Tag` □□□□□□□□□□ `X-PM-Metadata-<key>` □□□□□□□□ □□□□□ □□□□/EDM □□□□□□□□ **Postmark** □□□ □ □□ **API** □□□□□□ **webhooks** □□ OmniCRM□

## Mailchimp □□□□Mandrill□

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|---|---|
| □□ | `smtp.mandrillapp.com` |
| □□ | `587` / `465` / `25` |
| □□□ | □□ Mailchimp/Mandrill □□□□□□□□□□□□□□□□□□ |
| □□ | □□□□□ Mandrill API □□ |

□□□ □□□□□□□□ `X-MC-Track`□□□ `opens,clicks_all`□□□□□□□□□□ `X-MC-Tags` ��□ □□□□□ `X-MC-Metadata`□JSON□□□□□□□□□□ **Mandrill** □□□ □ API □□□□□□ **webhooks** □□ OmniCRM□

> □□□ □□ **Mailchimp** □□ □□ □□ SMTP □□□□□ **Mailchimp** □□□□**Mandrill**□ □□ SMTP □□□

## Brevo□□□□ Sendinblue□

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| □□ | `smtp-relay.brevo.com` |
| □□ | `587` / `465` / `25` / `2525` |
| □□□ | □□ Brevo □□□□□□□□□□ |
| □□ | □□ **SMTP** □□□Brevo → SMTP □ API → SMTP□ |

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## □□ / □□□ SMTP

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| □□ | □□□ `587`□STARTTLS□□ `465`□TLS□ |
| □□□ / □ □ | □□□□□□□□□ |

□□□ □□ SMTP □□□□□ □□□□□□□□□□□ OmniCRM □□□□□□□□□□□□

# □□□□□OmniMessage□

□□□□□□□□ □□□□□□□□□ OmniMessage □□□□□□□□□ `channel` ××× `email`□□□□□ `sms`□ □□□□□□□□ `channel: sms` □ `sms_message`□

□□□ □□□□□□□□□□□ □□□□□□□□□□□□□□ **`sms`** □□□□□□□□□

□□ □□ OmniMessage □□□□□□□□OmniCRM □□□□□□□□□□□

1. `POST /api/campaign_lists`□□□□□□□□□□□□□□□□`msisdn` + `var1`–`var4`□□
2. `POST /api/campaigns`□□□□□□`message`□`list_id`□`source_msisdn`□ `source_smsc`□`drip_tps`□□
3. `POST /api/campaigns/control` `{action: "start"}`□□□□□□

□□□□ OmniMessage □□□□□ `{{ var1 }}`–`{{ var4 }}`□□□ `{{ msisdn }}`□□□□□□□□ □□□□□OmniCRM □□□□□□□□□`first_name`→`var1`□`last_name`→`var2`□ `customer_name`→`var3`□`email`→`var4`□

□□□ OmniMessage □□□□ **webhook**□□□ `GET /api/campaigns/:id` □□□□ `stats`□ `POST /crm/email-campaign/campaigns/<id>/sms-sync` □□□□□□□□□□□ □`total_delivered` / `total_bounced` / `total_sent`□□□□□□□□□□□□□□□

□□□`smsc` □□ `crm_config.yaml` □□□

```yaml
smsc:
  campaigns_url: 'https://smsc:8443/api'   # □□□□ API □□
  source_msisdn: 'YourBrand'                 # □□□□□□
  source_smsc: 'IMS_SMSC'                  # SMSC □□
  drip_tps: 50                             # □□□□□□□□□□
  verify_tls: false                        # OmniMessage □□□□□□□
  timeout: 30
```

> OmniMessage □□□□□□□/□□□□□□□OmniCRM □□□□□□□□□□□□□□□□□□ `sms` □□□□□

# □□□□

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2 - OmniCRM
OmniCRM
+ OmniCRM
OmniCRM
OmniCRM EDM


1 -
+
webhook
OmniCRM

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|---|---|---|---|
| □□□ / □□ | ✓ | ✓ | ✓ |
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□□□□□□□ □□ **OmniCRM** □□□ □□OmniCRM □□□□□□□□□ **webhook** □□□□□□□□□

- □□□ □□□□□□□□ Mailjet□□□□ webhook □□□□□□□□□□□ `X-MJ-CustomID` □□□□ OmniCRM □□□□□□□

## □□□□

OmniCRM □□□□□ `crm_config.yaml` □ `edm` □□□□□

```yaml
edm:
  enable_open_tracking: true      # □□□□□□□□□□ HTML □
  enable_click_tracking: true     # □□□□□□□□□□□□
  enable_unsubscribe: true        # □□ List-Unsubscribe □ + □□□□□□□□
□
  tracking_base_url: ''           # □□□□□□□□□□ URL□□□□□□□
crm.base_url
  tracking_secret: ''             # □□□□□□□□□□□□□□□□□
mailjet.api_secret
  bounce_domain: ''               # MX □□□□□□□□□□□□□□□ VERP □□□
  bounce_prefix: 'bounce'         # VERP □□□□□□ -> bounce+
<token>@<bounce_domain>
```

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|---|---|---|---|
| `enable_open_tracking` | □□ | `true` | □ 1×1 □□□□□□□□□□ HTML □□□□ |
| `enable_click_tracking` | □□ | `true` | □□□□ `http(s)` □□□□□ OmniCRM □□□□□□□□□□ □□ |
| `enable_unsubscribe` | □□ | `true` | □□ `List-Unsubscribe` □□+ RFC 8058 □□□□□□ □□□□□□□ |
| `tracking_base_url` | □□□□ | *(crm.base_url)* | □□□□□□□□□□□ URL□□□□ □□□□□□□□□□□□□□□□□□□□ □□ **`localhost`**□ □□□□□ □ `crm.base_url`□ |
| `tracking_secret` | □□□□ | *(mailjet.api_secret)* | □□ HMAC □□□□□□□□□□ □□□□□□ `mailjet.api_secret`□ |
| `bounce_domain` | □□□□ | *(□)* | VERP □□□□□□□ `bounce+<token>@<domain>` □□□ MX □□□□ OmniCRM □□ □□□□□□□□□□□□□ VERP □ □□□□ |
| `bounce_prefix` | □□□□ | `bounce` | VERP □□□□□□□□□□□□ |

□□□ HMAC □□□ `(campaign_id, recipient_id)` □□□□□□□□□□□□□□□□□□□□

> □□□□□□□□□ □□□□□□/□□□□ ID □ *//*□□□□□□□□□ID □ base64 □□□□□□□□□□□□ URL □□□□□□□□□□□□

```yaml
edm:
  communication_categories:
    # □□□□□□□□□□□□□□□□□default_opt_in true = □□□□□□□□□□□□□
    - {key: marketing,       name: Marketing,           channel:
email, default_opt_in: true}
    - {key: newsletter,      name: Newsletter,          channel:
email, default_opt_in: true}
    - {key: promos,          name: Promotions & Offers, channel:
email, default_opt_in: true}
    - {key: product_updates, name: Product Updates,     channel:
email, default_opt_in: true}
    - {key: surveys,         name: Surveys & Feedback,  channel:
email, default_opt_in: false}
    - {key: events,          name: Events & Webinars,   channel:
email, default_opt_in: false}
    # □□□□□□□□□□□□□□□□default_opt_in false = □□□□□□□□□□□□□
    - {key: marketing,       name: Marketing SMS,       channel:
sms,   default_opt_in: false}
    - {key: promos,          name: Promotions SMS,      channel:
sms,   default_opt_in: false}
    - {key: service_alerts,  name: Service Alerts,      channel:
sms,   default_opt_in: true}
```

□□□□□□□□ □□□`email` □ `sms`□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ *□□□□□□□□* □□□□□□□□□□ *□□□□□□□□* □□□

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| □□ | □□ |
| --- | --- |
| `GET /crm/email-campaign/communication-categories` | □□□□□□□□□□□□ `crm_config.yaml` □□□□□ |
| `GET /crm/email-campaign/contacts/<id>/communication-preferences` | □□□□□□□□□□□□□□□□ |
| `PUT /crm/email-campaign/contacts/<id>/communication-preferences` | □□□□□□□□□ `{category, channel, opted_in}`□□ |

□□ □□□□□□ **`category`**□□□□ `marketing`□□□□□□□□□□□□□□□□□□/□□□□□□□□□□□□□□ **`default_opt_in`** □□□□□□□□□□□□□□□□

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# □□

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```
mailjet:
  smtp:
    host: 127.0.0.1
    port: 1025
    use_tls: false
    use_auth: false
```

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# eSIM □□□□

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## □□

eSIM □□□□□□□□□□□□

1. □□□□□□□□□□□□□□□□□□□□

## □□□□ eSIM

□□ eSIM □□□□□□□□□

1. □ OmniCRM □□□□ □□
2. □□□□□□□□□□□□ eSIM □□□□
3. □ `item_location` □□□ `digital`
4. □□□□

## □□□□ eSIM

□□□□□□□□□□□□ eSIM□

1. □ OmniCRM □□□□ □□
2. □□□□□□ eSIM □□□□
3. □ `item_location` □□□ `printed`□□□□□ `digital` □□□
4. □□□□

# □□□□□□□□□

□□□□□□□□□□□□□□ eSIM □□□□ `POST /crm/oam/issue-esim`□

1. API □□□□□ eSIM □□
2. □□□□□□□ □□ □□□ eSIM
3. □□□□□□□□□□□ eSIM
4. eSIM □□□□□□□□□□□□□□□□□□

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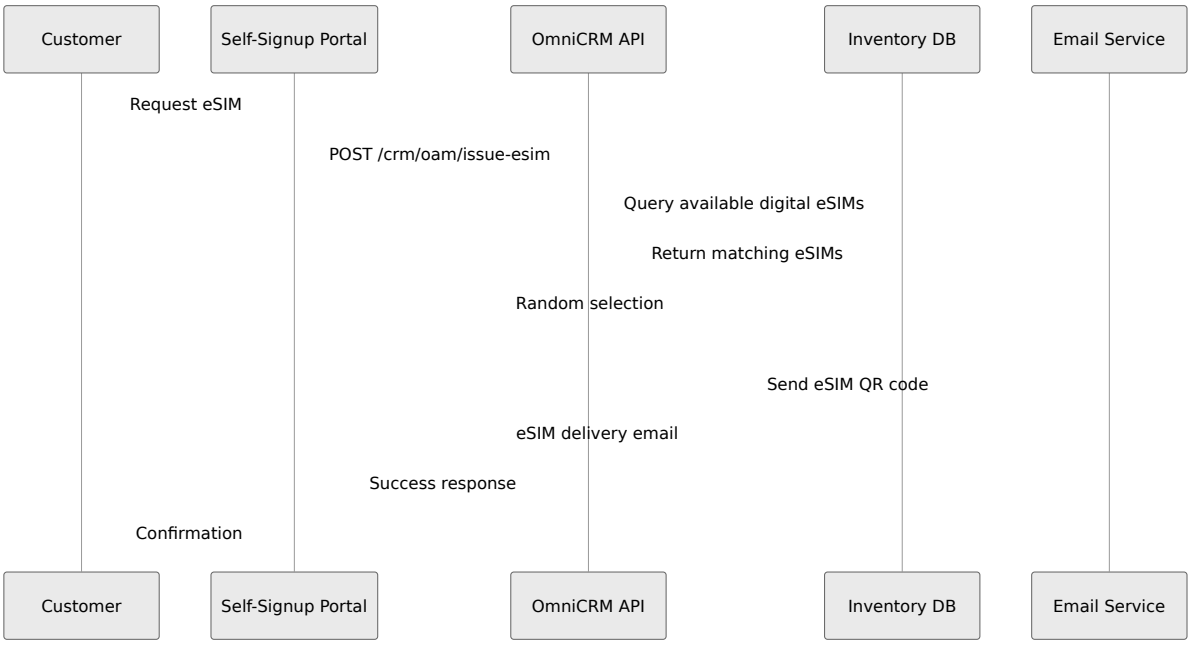
| □□ | □□ | □□ |
| --- | --- | --- |
| `item` | □□ "esim"□□□□□□□□ | □□ eSIM □□□□ |
| `item_location` | □□ `digital` | □□□□□□□□□□ |
| `customer_id` | □ null | □□□□□□□ |
| `service_id` | □ null | □□□□□□□ |




□□ issue-esim □□□□□□□□□□

# eSIM □□□□□□□

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| --- | --- | --- |
| `item` | □□□ | □□□□□□□□□□□□□ "esim" □□ eSIM □□□ |
| `item_location` | □□□ | □□��□□`digital` □□□□□□□□□□□□□ |
| `itemtext1` | □□□ | ICCID□□□□ eSIM □□□ |
| `management_url` | □□□ | LPA □□□□□□□□□`LPA:1$rsp-eu.simlessly.com$...`□ |
| `customer_id` | □□ | □□□□□□□□□□□ null□ |
| `service_id` | □□ | □□□□□□□□□□□ null□ |

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# □ HSS □□□□□

□□□□□□□□□ HSS □□ SIM □□□□□□□□□□ HSS □□□□□□□□

□□□□ (**`item_location`**)□

- □□□□□□□□□ **"digital"**□□□□□□□□□□□ eSIM □□□ `item_location = 'digital'` □□□□□□□
- □□□eSIM □□□□□□□□□□□□□□□□□“□□”□

**LPA □□□□□ (`management_url`)**□

- HSS SIM □□□□ `lpa` □□□□□□□□ `management_url`
- □□□□ CRM □□□ eSIM □□□□□□□□□□

- □□ HSS □□□□□ `lpa` □□□ eSIM □□□□□□□□□□□□□□□□□□

□□□□□□□□□□ LPA □□□□□□ HSS □□□□□□□□

- □□□□□□□□□□□□□“2026 □□□□□□□□ eSIM”□“□□□□□□□ 3”□
- □□□□□□□□□□eSIM □ `lpa` □□□ HSS □□□□

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## □□□□

- □□ `item_location` □□□□□□□ eSIM □□□
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- □□□□□□ eSIM □□□□□□□□□□□

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□□□□□□□□□□ eSIM □□

1. □□ **eSIM**□□□□□□□□ `item_location = 'digital'`
2. □□ **eSIM**□□□□ `item_location = 'printed'` □□□□□□□□□□“□□□□□□□”□

## □□□□□□□□

□□□□□□□□□□ eSIM□

- □□□□□□□□□□ `item_location` □ `printed` □□□ `digital`
- □□□□□□□□□□ `item_location` □ `digital` □□□ `printed`□□□□□□□□□□□□□□□

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## □□□□□□□□□□□□ eSIM

□□□□□□□□□□□□ eSIM □□□“□□□□□□□□ eSIM”□

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- □□ eSIM □ `item_location` □□□ `digital`
- □□□□ eSIM □□□□□ `customer_id` □ `service_id` □□□ null□
- eSIM □□□□□□□ "esim"

□□□□□

1. □□□□□□□□ `item_location = 'digital'` □ eSIM
2. □□□□□□□□□ eSIM□ `customer_id` □ `service_id` □□ null□
3. □□□□□□□□□ eSIM□□□□□□□□□□□□□□ eSIM

# □□ eSIM □□□□

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- □□ eSIM □ `item_location` □□□□□

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1. □□□□□□ eSIM□□□□□ `item_location = 'printed'`
2. □□□□□□ eSIM □□□□□□□ `item_location` □

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OmniCRM□□□□□

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- **AMBER**□□ - □□□□□□□
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**□□Web UI□**

1. □□□□□□□□ - □□□□□□□CBC□□□□
2. □□**“□□□□”** - □□□□□□□□□
3. □□□□□□□□
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4. □□□□□□□□□□
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5. □□□□□□□□
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6. □□□□□□ - □□□□□□□□□□□□“□□□□□”

**□□API□**

□□□ `PUT /crm/cbc/`

□□□□□□ `CREATE_CBC_MESSAGE`

□□□□

```
{
  "messageIdentifier": "4370",
  "category": "emergency",
  "repetitionPeriod": 10,
  "numberOfBroadcasts": 999,
  "warningPeriodSec": 3600,
  "channelIndicator": "basic",
  "localized_messages": [
    {
      "language": "en",
      "messageBody": "EARTHQUAKE WARNING: Magnitude 6.5 earthquake
detected. Take cover immediately. Drop, Cover, Hold On."
    },
    {
      "language": "es",
      "messageBody": "ADVERTENCIA DE TERREMOTO: Terremoto de
magnitud 6.5 detectado. Cúbrase inmediatamente. Agáchese, Cúbrase,
Agárrese."
    }
  ],
  "tracking_areas": [
    {
      "tracking_area": "12345",
      "operator": "310-410",
      "rat_type": "LTE"
    },
    {
      "tracking_area": "12346",
      "operator": "310-410",
      "rat_type": "5G"
    }
  ]
}
```


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```
{
  "cbc_message_id": 123,
  "cbc_unique_id": "550e8400-e29b-41d4-a716-446655440000",
  "messageIdentifier": "4370",
  "category": "emergency",
  "repetitionPeriod": 10,
  "numberOfBroadcasts": 999,
  "warningPeriodSec": 3600,
  "channelIndicator": "basic",
  "initiating_user": 5,
  "approving_user": null,
  "created": "2025-01-10T14:30:00Z",
  "localized_messages": [...],
  "tracking_areas": [...]
}
```

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# □□□□□□

□□□□□□

□□□ `GET /crm/cbc/`

□□□□□ `VIEW_CBC_MESSAGE`

□□□□CBC□□□□□□□□□□□□□□□□□□□□□

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□□□ `PATCH /crm/cbc/{cbc_message_id}`

□□□□□ `UPDATE_CBC_MESSAGE`

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```
{
  "cbc_message_id": 123,
  "numberOfBroadcasts": 500,
  "localized_messages": [
    {
      "language": "en",
      "messageBody": "UPDATED: Earthquake warning still in effect.
Aftershocks possible."
    }
  ]
}
```

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□□□ `DELETE /crm/cbc/{cbc_message_id}`

□□□□□ `DELETE_CBC_MESSAGE`

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2. □□□□ - □□□□□□□□□□□□□ `approving_user` □□□

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- □□□ `approving_user = null` □□
- □□□□“□□□”□□
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- **4370** - ETWS□□□□
- **4371** - ETWS□□□□
- **4372** - ETWS□□□□□□□□□□
- **4373-4378** - ETWS□□□□□□
- **4379** - ETWS□□□□

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- **4352** - □□□□
- **4353-4355** - □□□□
- **4356-4359** - □□□□
- **4360-4363** - AMBER□□
- **4364-4367** - □□□□□□
- **4368-4369** - □/□□□□
- **4380-4381** - □□□□

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- **0-999** - □□□□□□□□□□□□
- **1000-4095** - □□□□□□□

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# OWL CBC□□

CBC URL□`crm_config.yaml`□□□□

```
cbc_url: "http://cbc.example.com:8080"
```

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□□□□□□□CBC□□□□

1. OmniCRM CBE□□□□□□□□□□□□
2. □□□□□□□CBC API
3. □`{cbc_url}/alerts/send`□□HTTP POST□□
4. CBC□□□□□□□□□CBSP□SBc-AP□N50□□□□□□□□
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**SBc-AP - 4G/5G□□□ - MME/IWF**

SBc-AP□□□OWL CBC□□□4G□5G eNodeB/gNodeBs□MME□□□□□□□□□□□□

- □□4G LTE□□
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- □□**U2000 / U2020**
- □□**NetNumen / ZXPOS**
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- `CREATE_CBC_MESSAGE` - □□□□□□□□□
- `VIEW_CBC_MESSAGE` - □□□□□□□□□□□
- `UPDATE_CBC_MESSAGE` - □□□□□□□□□□□□
- `DELETE_CBC_MESSAGE` - □□□□□□□□□□

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- **lat/lng** - □□□□
- **site_name** - □□□
- **sectors** - □□□□□□□□□□□□

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```
[
  {
    "area": "Coastal Region",
    "polygon": [
      {
        "coord": [
          {"lat": -33.8688, "lng": 151.2093},
          {"lat": -33.8650, "lng": 151.2070},
          {"lat": -33.8600, "lng": 151.2150},
          {"lat": -33.8688, "lng": 151.2093}
        ]
      }
    ]
  }
]
```

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### Google Maps API□

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```
VITE_GOOGLE_API_KEY=your_google_maps_api_key_here
```

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```
# □□□lat,lng,name,sector1,sector2,sector3
-33.8688,151.2093,SYD_CENTRAL,0,120,240
-33.8650,151.2070,SYD_HARBOUR,45,165,285
```

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□□□`mapStyles.js`□□□□□□□□□□□□□□□

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- □□□15□ × 93 = □□1395□□□

**Unicode UCS-2□□□□□□□□□□□□□□□□□□**

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```
SELECT * FROM cbc
WHERE created >= '2025-01-01'
ORDER BY created DESC;
```

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`PUT /crm/cbc/`

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`GET /crm/cbc/`

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`PATCH /crm/cbc/{cbc_message_id}`

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`DELETE /crm/cbc/{cbc_message_id}`

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> John Smith □□ ID: 123 □□: customer
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GET /utilities/search_everything?
search=Smith&page=1&per_page=10&search_closed_records=false
Authorization: Bearer <token>
```

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- `search`□□□□ - □□□
- `page`□□□□ - □□□□□□□1□
- `per_page`□□□□ - □□□□□□□□10□
- `search_closed_records`□□□□ - □□□□□□□□□□□□□false□

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```
{
  "data": [
    {
      "id": 123,
      "name": "John Smith",
      "customer_id": 123,
      "type": "customer"
    },
    {
      "id": 456,
      "name": "John Smith",
      "customer_id": 123,
      "type": "contact"
    },
    {
      "id": 789,
      "name": "Mobile - +44 7700 900123",
      "customer_id": 123,
      "type": "service"
    }
  ],
  "pagination": {
    "current_page": 1,
    "per_page": 10,
    "total_pages": 5,
    "total_items": 47
  }
}
```


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```sql
-- Customers
SELECT customer_id AS id,
       customer_name AS name,
       customer_id,
       'customer' AS type
FROM customer
WHERE customer_name LIKE '%Smith%'
  AND customer_status = 'Open'

UNION ALL

-- Contacts
SELECT contact_id AS id,
       CONCAT(contact_firstname, ' ', contact_lastname) AS name,
       customer_id,
       'contact' AS type
FROM customer_contact
WHERE (contact_firstname LIKE '%Smith%' OR
       contact_lastname LIKE '%Smith%' OR
       contact_email LIKE '%Smith%' OR
       contact_phone LIKE '%Smith%')

UNION ALL

-- Sites
SELECT site_id AS id,
       site_name AS name,
       customer_id,
       'site' AS type
FROM customer_site
WHERE site_name LIKE '%Smith%'

UNION ALL

-- Inventory
SELECT inventory_id AS id,
       itemtext1 AS name,
       customer_id,
       'inventory' AS type
FROM inventory
WHERE itemtext1 LIKE '%Smith%' OR
      itemtext2 LIKE '%Smith%'
```

```
UNION ALL

-- Services
SELECT service_id AS id,
       service_name AS name,
       customer_id,
       'service' AS type
FROM customer_service
WHERE service_name LIKE '%Smith%' OR
      service_uuid LIKE '%Smith%'
```

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  - □□□□□□□“<john.smith@example.com>”□□□“john”□□□□

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- `basics_customers` - □□□□
- `basics_navigation` - □□□□
- `administration_inventory` - □□□□

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- □□□□□□ $10 □□
- □□□□ `VITE_CURRENCY_CODE` □□

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## □□ 3□□□

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- □□□□Visa□Mastercard□Amex□
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**1.** □□□□

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- □□□□□□□□ `succeeded`
- □□□□□□□□□□□□□□□□□`days × price_per_day`□
- □□□□□□□□□□□□□□□□□□□□□

**2.** □□□□

```
- API □□□POST /oam/topup_dongle
- □□ service_uuid □ IMSI
- □□ OCS/CGRateS □□□□□
- □□□□□□□ (play_topup_hotspot)
```

**3.** □□□□

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- **HotspotTopup** □□ - □□□□□□□
  - payment_intent_id
  - service_uuid

    - imsi
    - □□□□□
    - topup_amount
    - □□□□□/□□/□□□
- □□□□ - □□□□
    - □□□“□□□□ - 7 □”
    - □□□topup_amount□□□□
    - □□□ service_id □ customer_id
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    - □□□□□□□
    - □□□□□□□
    - □□□□□Stripe payment_intent_id
- □□□□ - □□□□□□□
    - □□□“□□ [□□□□]”
    - □□□topup_amount□□□ - □□□
    - □□□□□□□□□□□□□□

**4.** □□□□

□□□□□□□□□□□□ playbook `play_topup_hotspot`□□□□□

- □□□ OCS/CGRateS API
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**5.** □□□□□□□□

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```
if topup_provisioning_failed:
    refund = stripe.Refund.create(
        payment_intent=payment_intent_id,
        reason='requested_by_customer'  # □□□□□□
    )
    status_message = "□□□□□□□□□□□□..."
```

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# API □□

## □□□□

```
POST /oam/topup_dongle
Content-Type: application/json

{
  "service_uuid": "123e4567-e89b-12d3-a456-426614174000",
  "imsi": "310120123456789",
  "days": 7,
  "payment_intent_id": "pi_1234567890abcdef",
  "topup_amount": 70.00
}
```

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```
{
  "result": "OK",
  "status": 200,
  "provision_id": 456,
  "payment_intent_id": "pi_1234567890abcdef",
  "service_uuid": "123e4567-e89b-12d3-a456-426614174000",
  "invoice_id": 789
}
```

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```
{
  "result": "Failed",
  "Reason": "OCS connection timeout",
  "status": 500
}
```

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- □□□□□□□□□□service_uuid□imsi□days□ payment_intent_id□topup_amount□
- topup_amount □ days □□□`topup_amount × 100 == days × 1000`□□□□□□□
- Stripe □□□□□□□
- □□□□□□□□□ `payment_intent.amount == topup_amount × 100`
- □□□□□□□ `succeeded`
- □□□□□□□□□□□□ `HotspotTopup` □□

## □□□□

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```
GET /oam/usage
```

□□□

```
{
  "imsi": "310120123456789",
  "service": {
    "service_uuid": "123e4567-e89b-12d3-a456-426614174000",
    "service_name": "□□□□ - 0412345678",
    "service_status": "□□"
  },
  "balance": {
    "expiry": "2025-01-10T23:59:59Z",
    "unlimited": true
  },
  "requestingIp": "203.0.113.45"
}
```

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## □□□□

□ OmniCRM-UI □ `.env` □□□□□□□□□

```
# □□□□□□□
VITE_TOPUP_PRICE_PER_DAY=10
VITE_CURRENCY_CODE=AUD
VITE_SELF_CARE_NAME="YourCompany"

# □□□□
VITE_PAYMENT_VENDORS="stripe"
VITE_STRIPE_PUBLISHABLE_KEY=pk_live_...
```

## Stripe □□

□□□□□□□ Stripe □□□□□

1. □□□ **Stripe** □□□□□□□□□□□
2. □□ **Webhook** □□□□□□□□□□□□□□□□□□□
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```
# □□
VITE_STRIPE_PUBLISHABLE_KEY=pk_test_...

# □□
VITE_STRIPE_PUBLISHABLE_KEY=pk_live_...
```

## Playbook □□

□□ playbook `play_topup_hotspot.yaml` □□

- □□ `days` □□
- □□□ OCS/CGRateS API
- □□□□□□□□
- □□□□□□□□□

□□ playbook □□□

```
- name: □□□□□□□□
  hosts: localhost
  tasks:
    - name: □ OCS □□□□
      uri:
        url: "{{ ocs_api_url }}/add_balance"
        method: POST
        body:
          imsi: "{{ imsi }}"
          days: "{{ days }}"
          service_uuid: "{{ service_uuid }}"
```

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**SMS □□□**

□ OCS □□□□□□`Action_Balance_Low`□ `Action_Balance_Out`□ `Action_Balance_Expired`□□

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□ OCS/CGRateS □□□□□□□□□□□□□□□□

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- `Action_Balance_Low` - □□□□□□□□□□□□ 2 □□
- `Action_Balance_Out` - □□□□
- `Action_Balance_Expired` - □□□□

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  - □□ `VITE_STRIPE_PUBLISHABLE_KEY` □□□□□□
  - □□ Stripe □□□□□□□□□□
  - □□□□□□□□□□□□ JavaScript □□

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- □□□□□
  - □□□□□□□□`GET /crm/provision/provision_id/<id>`
  - □□ OCS/CGRateS API □□□□□
  - □□ playbook `play_topup_hotspot.yaml` □□□□
  - □□ Ansible □□

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  - □□ `VITE_TOPUP_PRICE_PER_DAY` □□□□□□□□□□□□□□ $10□
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□□ `HotspotTopup` □□□□□□□□□□□□

```
SELECT
  hotspot_topup_id,
  service_uuid,
  days,
  topup_amount,
  status,
  payment_intent_id,
  created
FROM hotspot_topup
WHERE status = 'Failed'
ORDER BY created DESC;
```

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```
GET /crm/provision/provision_id/<provision_id>
```

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**Stripe** □□□□

□□□ Stripe □□□□□□□□□□□□□□□□□□□□□□□□ <https://dashboard.stripe.com>

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2. □□□□□□□□ - □□□□□□□□□□
3. □□ **playbooks** □□ - □□ playbooks □□□□□□
4. □□ **OCS** □□□ - □□ OCS API □□□□□
5. □□□□ - □□□□□□□ `VITE_TOPUP_PRICE_PER_DAY`

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1. □□□□ **URL** - □□□□□□□□
2. □□□□□□□□ - SMS □□□□□□
3. □□□□□□□□□ - □□□□□□□□□□□□□□
4. □□□□□□□□ - □□□□□□□□□□□

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1. □□ **Stripe webhooks** - □□ webhook □□□□□□□□□□□□□□
2. □□□□□ - □□□□□□□□□ payment_intent_id
3. □□□□ - □□□□□□□□□□□□□□□□

4. □□□□□□□ - □□□□□□□□□□□□□□□□
5. □□□□ - □□□□□□□ <5 □□□□

# □□□□

- `payments_process` - □□□□□□□
- `concepts_provisioning` - □□□□□□□
- □□□□□□□ - □□□□□□□□□□
- `payments_transaction` - □□□□
- `payments_invoices` - □□□□

# □□□

□□□□ OmniCRM □□□□□

# I

**IMS (IP Multimedia Subsystem)** - □□□□ IP □□□□VoLTE□□□

# R

**RBAC (Role-Based Access Control)** - □□□□□□□ OmniCRM □□□□□□□□□□□□□□□□□ ��□□□□□□□□□□□□□□□□□□□□ Role-Based Access Control□

# S

**Self-Care Portal** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Self-Care Portal□

**Self-Signup** - □□□□□□□□□□□□□□□□□□□□ SIM □□□□□□□□□□

**Service** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Products and Services□

**SIM (Subscriber Identity Module)** - □□□□□□□□□□□□□□□□□□□□□□□ SIM Card Provisioning□

# T

**Tag** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Tags□

**Transaction** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Transactions□

# Numbers

**2FA (Two-Factor Authentication)** - □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Two-Factor Authentication□

# □□□□□□□□□□□

□□□□□□ OmniCRM □□□□□□□□□□□

- `wholesale_setup_cost` - □□□□□□□
- `retail_setup_cost` - □□□□□□□□□□□□

□□□

```
{
  "retail_cost": 15.00,
  "wholesale_cost": 5.00,
  "retail_setup_cost": 0.00,
  "wholesale_setup_cost": 1.00
}
```

# □□ 1□□□□□□□□

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## □□□□ SIM □□

□□□□□□□□□ 20GB □□□□□□□□□ SIM □□□

□□ 1□□□□□□□□□

□□□□ UI□□□ □□ → □□□□□

□□ 2□□□□□□□□

```
{
  "product_name": "□□□□□□ 20GB",
  "product_slug": "prepaid-mobile-20gb",
  "category": "standalone",
  "service_type": "mobile",
  "enabled": true,
  "icon": "fa-solid fa-sim-card",
  "comment": "□□□□□□ SIM□□□ 20GB □□□□□□□□□□□□"
}
```

□□□□□

- `product_name` - □□□□□□□□□□□□□□□□
- `product_slug` - □□ API □□□□□□□ URL □□□□□□
- `category` - “standalone”□□□□□□□□□□□□□□□□□□□□/□□□□□□□
- `service_type` - □□□□□□□□□□□□□□□□□□
- `enabled` - □□□□ true □□□□□□□
- `icon` - □ UI □□□□□ FontAwesome □□
- `comment` - □□□□□□□□□□□□

□□ **3**□□□□□

```
{
  "retail_cost": 15.00,
  "wholesale_cost": 5.00,
  "retail_setup_cost": 0.00,
  "wholesale_setup_cost": 1.00,
  "contract_days": 30
}
```

□□□□□

- □□□□□□□□□□£15.00
- □□□□□□□□£5.00
- □□□□□□□£10.00□200% □□□67% □□□□
- □□□□□□-£1.00□□□□□□□□□□
- □□□□□□30 □□□□□□□□

□□ **4**□□□□□□□

```
{
  "residential": true,
  "business": false,
  "customer_can_purchase": true,
  "available_from": "2025-01-01T00:00:00Z",
  "available_until": null
}
```

- □□□□□□□□□

- □□□□□□□□□□□□□□□□
- □□□□□□□
- □ 2025 □ 1 □ 1 □□□□
- □□□□□□□□□□□□□□

□□ **5**□□□□□□□

```
{
  "auto_renew": "prompt",
  "allow_auto_renew": true
}
```

- `"prompt"` - □□□□□□□□□□□□□□□□□□
- `"true"` - □□□□□□□□□□
- `"false"` - □□□□□□□□□□□□□□
- `allow_auto_renew: true` - □□□□□□□□□/□□□□□□□

□□ **6**□□□□□□□

□□□□□□□□□□□□□□□□□

`inventory_items_list` □□□□□□□□□□□□□ Python □□□□□□□□□□□□□□□□□□□□□ □□□□ □□□□□□□□

□□□□□□□□

```
# □□ SIM □□
inventory_items_list: "['SIM Card', 'Mobile Number']"

# □□□□□□□□
inventory_items_list: "['Modem Router', 'Static IP Address']"

# □□□□□□□□□□□□□
inventory_items_list: "[]"

# □□□□□ CPE
inventory_items_list: "['Fixed Wireless CPE', 'IPv4 Address',
'IPv6 Prefix']"
```

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**1.** □□□□□□□

□□□□□□□□□□□“□□”□□□□□□□□□□□□□ `inventory_items_list`□

**2.** □□□□□□□□□□□

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**3.** □□□□□□□

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- □□□□ - `item_state` □“□”□“□□□”□□□□“□□□”□“□□”□
- □□□ - `service_id` □ `customer_id` □ NULL
- □□□□□□□ - □□□□□□□/□□□□□□□

□□□□□□□□

□□“SIM □”□□□□□□□□□□□□□□□□

□□□□□□□□

- □□ ID □□□□□
- □□□□□□□`itemtext1` - □□□SIM □ ICCID□□□□□□
- □□□□□`item_location`□

**4.** □□□□□□□□

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- “□□”□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□
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**5.** □□□□□□□ **Ansible**

□□□□□□“□□”□□□□□ ID □□□□□□□□ Ansible □□□

```
# □□□□□
# - SIM □ inventory_id: 5001
# - □□□□ inventory_id: 5002

# ���□□ Ansible □□□□
{
    "product_id": 42,
    "customer_id": 123,
    "SIM Card": 5001,           # □□ ID
    "Mobile Number": 5002,       # □□ ID
    "access_token": "eyJ..."
}
```

□□□ □□□□□□□□□□□□□□□□□□□ `hostvars[inventory_hostname]['SIM Card']` □□□□ ID□

**6.** □□□□□□□□□□□□□

Ansible □□□□□□ ID □□□□□□□□□

```
- name: □□□□□□ SIM □□□□□□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ hostvars[inventory_hostname]['SIM
Card'] }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: api_response_sim

- name: □□ ICCID □ IMSI
  set_fact:
    iccid: "{{ api_response_sim.json.itemtext1 }}"
    imsi: "{{ api_response_sim.json.itemtext2 }}"
```

□□□□□□□□ SIM □□□□□ICCID□IMSI □□□□ HSS □□□□□□□□

**7. □□□□□□□“□□□”**

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
- name: □ SIM □□□□□□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ hostvars[inventory_hostname]['SIM
Card'] }}"
    method: PATCH
    body:
      {
        "service_id": "{{
service_creation_response.json.service_id }}",
        "customer_id": "{{ customer_id }}",
        "item_state": "Assigned"
      }
```

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- □□□□□□□□□□“□□”□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□
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1. □□□□ **ID**□□□□□□□□□□□□□`service_id` □□□
2. □□□□□□□□□□□□□□□□□□□□OCS □□□□□□□□□□□□□□□□
3. □□□□□□□□□□□□□□□□□□□□□□□□

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```
rescue:
  - name: □□□□□□□□
    uri:
      url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ hostvars[inventory_hostname]['SIM
Card'] }}"
      method: PATCH
      body:
        {
          "service_id": null,
          "customer_id": null,
          "item_state": "In Stock"
        }
    when: service_id is defined  # □□□□□□□□
```

□□□□□□□□□“□□□”□□□□□□□□□□□□□□□

□□□□□□□□

□□ `inventory_items_list: "[]"`□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

- □□□□ - □□□□□□□VPN □□
- □□□□□□□ - □□□□□□□□□□□□
- □□□□ - □□□□□□□□□

□□□ “5GB □□□□”□□□□□ `inventory_items_list: "[]"`□□□□□□□□□□□□□□□□□□□

□□□□□□□

□ `inventory_items_list` □□□□□□□□□□□□□□□□□□□□□□□□□□□

1. □□□ □□ → □□ → □□
2. □□□□□□□□□□□□□□□□□“SIM □”□
3. □□□□□□
   - `itemtext1_label`: "ICCID"
   - `itemtext2_label`: "IMSI"
   - `itemtext3_label`: "PUK □"
4. □□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□

□□□□□□□□□□

□□ `inventory_items_list` □□□□□□□□□□□□□□□□□□□□

```
inventory_items_list: "['SIM Card', 'Mobile Number']"
```

- SIM □□□□ ICCID/IMSI □□□□ eSIM
- □□□□□□□□□□MSISDN□

□□□□□□

```
inventory_items_list: "['Modem Router', 'Static IP Address']"
```

- □□□□□□□□□□□ MAC □□□ CPE □□
- □□ IP □□□□□□□□□ IPv4

□□□□□

```
inventory_items_list: "['Fixed Wireless CPE', 'IPv4 Address',
'IPv6 Prefix']"
```

- CPE□□□□□□□□□□□□□□□□□□
- IPv4□□□ IP □��
- IPv6 □□□/56 □ /64 □□

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**VoIP** □□□

```
inventory_items_list: "['DID Number']"
```

- DID □□□□□□□□□□□

□□□ SIP □□□□□□□□□□□□□□□□□□□**□□□□□□□□□□□□□□□□□

**GPON/**□□□

```
inventory_items_list: "['ONT □□', 'GPON □□', 'IPv4 □□', '□□□□□□']"
```

- ONT □□□□□□□□□□□□□□□□
- GPON □□□□□□□□□□ OLT □□□□□□□
- IPv4 □□□□□□□□□ IP
- □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□

```
inventory_items_list: "['□□□□□□□□□']"
```

- □□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□

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**1.** □□□□□□□

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- □□□ SIM □□□□□□□□□
- □□□ IP □□□□□□□□□□
- □□□□□□□□□□□□□□□□□□

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**2.** □□□□

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- □□ SIM □□□□
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5. □□□□□□□□□□□□`service_id` □□ NULL□

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- `inventory_items_list` □□□`"[]"`
- `inventory_items_list` □ NULL □□□□
- □□□□□□“□□□□”□□□□□□□□□□

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- □□□□□□□□□□□ `inventory_items_list: "['Type1', 'Type2']"`
- □□□□□□□□□□□□□□
- □□ API □□□□□□□□□□ inventory_items_list

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- □□□□□□□□□□□□□ `hostvars[inventory_hostname]['SIM Card']`
- □□□□□□□□□□□ `{{ hostvars[inventory_hostname]['SIM Card'] | int }}`
- □□□□□□□□□□□□□□□□

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```
{
  "features_list": "20GB □□□□
```

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□□ **8**□□□ **Ansible** □□□□

```
{
  "provisioning_play": "play_local_mobile_sim",
  "provisioning_json_vars": "{
    \"days\": 30,
    \"data_gb\": 20,
    \"voice_minutes\": \"unlimited\",
    \"sms_count\": \"unlimited\"
  }"
}
```

- `provisioning_play` - Ansible □□□□□□□□□ .yaml □□□□
- `provisioning_json_vars` - □□□□□□□□□□□
- □□□□□□□□□ `OmniCRM-API/Provisioners/plays/play_local_mobile_sim.yaml`

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```
{
  "product_name": "□□□□□□ 20GB",
  "product_slug": "prepaid-mobile-20gb",
  "category": "standalone",
  "service_type": "mobile",
  "enabled": true,
  "icon": "fa-solid fa-sim-card",
  "comment": "□□□□□□ SIM□□□ 20GB □□□□□□□□□□□□",

  "retail_cost": 15.00,
  "wholesale_cost": 5.00,
  "retail_setup_cost": 0.00,
  "wholesale_setup_cost": 1.00,
  "contract_days": 30,

  "residential": true,
  "business": false,
  "customer_can_purchase": true,
  "available_from": "2025-01-01T00:00:00Z",
  "available_until": null,

  "auto_renew": "prompt",
  "allow_auto_renew": true,

  "inventory_items_list": "['SIM Card', 'Mobile Number']",

  "features_list": "[
    '20GB □□□□',
    '□□□□□□□□',
    '□□□□□□□',
    '□□□',
    '30 □□□'
  ]",
  "terms": "□□□ 30 □□□□□□□□□□□□
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  }"
}
```

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```
{
  "product_name": "5GB □□□□",
  "product_slug": "5gb-data-boost",
  "category": "addon",
  "service_type": "mobile",
  "enabled": true,
  "icon": "fa-solid fa-plus",
  "comment": "□□□□□□□□□□ 5GB □□□□",

  "retail_cost": 5.00,
  "wholesale_cost": 1.50,
  "retail_setup_cost": 0.00,
  "wholesale_setup_cost": 0.00,
  "contract_days": 0,

  "residential": true,
  "business": true,
  "customer_can_purchase": true,

  "auto_renew": "false",
  "allow_auto_renew": false,

  "inventory_items_list": "[]",
  "relies_on_list": "",

  "features_list": "5GB □□□□□□□□ 7 □",
  "terms": "□□□ 7 □□□□□□□□□□□□□□□□",

  "provisioning_play": "play_topup_charge_then_action",
  "provisioning_json_vars": "{
    \"data_gb\": 5,
    \"days\": 7
  }"
}
```

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```
{
  "product_name": "WiFi 6 □□□□□□□□□□",
  "product_slug": "wifi6-modem-rental",
  "category": "addon",
  "service_type": "internet",
  "enabled": true,
  "icon": "fa-solid fa-router",
  "comment": "□ WiFi 6 □□□□□□□□□□□□□□□ - □□",

  "retail_cost": 10.00,
  "wholesale_cost": 3.00,
  "retail_setup_cost": 0.00,
  "wholesale_setup_cost": 45.00,
  "contract_days": 30,

  "residential": true,
  "business": true,
  "customer_can_purchase": true,

  "auto_renew": "true",
  "allow_auto_renew": true,

  "inventory_items_list": "['□□□□□□□□']",
  "relies_on_list": "",

  "features_list": "WiFi 6 (802.11ax)□□□ 2.4GHz + 5GHz□□□□□ 40 □□
□□□□□□□",
  "terms": "□□□□□□□□□□□□□□□□□□□□□□□□ £150 □□□□□□□□□□□□□□□□□□□□",

  "provisioning_play": "play_addon_assign_modem",
  "provisioning_json_vars": "{
    \"device_type\": \"modem_router\",
    \"requires_configuration\": true
  }"
}
```

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- `category: "addon"` - □□□□□□□□□□□□□□□□
- `contract_days: 0`□□□□□ `30`□□□□□□ - □□□□
- `inventory_items_list: "[]"`□□□□□ `"['□□□□□□□□']"`□□□□ - □□□□

- `auto_renew: "false"`□□□□□□□ `"true"`□□□□□ - □□□□□
- `relies_on_list: ""` - □□□□□□□□□□□□□□□ `service_type` □□

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□□□□□□□□□ `inventory_items_list`□□□□□

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   - `service_id`□□□□□□□□□□
   - `customer_id`□□□□□□□
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   - □□□□□□ `item_state` = “□□□”□□□□□□□□
   - □ `item_state` = “□□”□□□□□□□□
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4. □□□□□
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# □□ 2□□□□□

□□□□□“□□□□□□ 20GB”□□□□OmniCRM □□ Ansible □□□□□

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- **SIM** □ - □□□□□□□□□□□□□□ SIM □
  - □□□“SIM-00123 - ICCID: 8944…”
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  - □□□“+44 7700 900123”

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- □□□□□□ + □□ + □□□□□□□
- □□□□□□□□□ Ansible □□
- □□ provision_id □□ UI □□□□

**5.** □□□□

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```
{
  "days": 30,
  "data_gb": 20,
  "voice_minutes": "unlimited",
  "sms_count": "unlimited"
}
```

□□□□□

```
{
  "product_id": 42,
  "customer_id": 123,
  "SIM Card": 5001,
  "Mobile Number": 5002
}
```

□□□□□

```
{
  "access_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9...",
  "initiating_user": 7
}
```

□□□□□ **Ansible** □□□□

```
{
    "product_id": 42,
    "customer_id": 123,
    "SIM Card": 5001,
    "Mobile Number": 5002,
    "days": 30,
    "data_gb": 20,
    "voice_minutes": "unlimited",
    "sms_count": "unlimited",
    "access_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9...",
    "initiating_user": 7
}
```

**6. □□ Ansible □□**

□□ `play_local_mobile_sim.yaml` □□□□□□□□□□

# □□ Ansible □□□□

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## □□ SIM □□□□□□□

□□□ `OmniCRM-API/Provisioners/plays/play_local_mobile_sim.yaml`

□□□□□

```
- name: □□ SIM □□
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: □□
      block:
        # 1. □□□□
        # 2. □ API □□□□□□□□
        # 3. □ API □□□□□□□□
        # 4. □ API □□□□□□□□
        # 5. □ OCS □□□□□□CGRateS□
        # 6. □ OCS □□□□□□□
        # 7. □ CRM □□□□□□□
        # 8. □□□□□□□□
        # 9. □□□□
        # 10. □□□□□□

      rescue:
        # □□□□□
        # - □□ OCS □□
        # - □□□□
        # - □□□□
```

□□□□□□□□

□□ **1**□□□□□

```
- name: □□ crm_config □□□
  ansible.builtin.include_vars:
    file: "../../crm_config.yaml"
    name: crm_config
```

□□□□□□□□□□□

- OCS/CGRateS URL □□□
- CRM □□ URL
- □□□□

□□ **2**□□□□□□□□□

```
- name: □ CRM API □□□□□□
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/product/product_id/{{
product_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
    return_content: yes
  register: api_response_product
```

□□□□□□

- □□ `GET /crm/product/product_id/42`
- □□□□□□□□□
- □□□ `api_response_product` □□□

□□ □□□□□□□□□ `provisioning_json_vars`□□□□□□□□□□□□□□□□□

- □□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□
- □□□□□□□□□□

- □□□□□□□□□□□□

□□ **3**□□□□□□

```
- name: □□□□□
  set_fact:
    package_name: "{{ api_response_product.json.product_name }}"
    monthly_cost: "{{ api_response_product.json.retail_cost }}"
    setup_cost: "{{ api_response_product.json.retail_setup_cost
}}"
```

□□□□□□□□□□□□

□□ **4**□□□□□□□□□

```
- name: □ CRM API □□ SIM □□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ hostvars[inventory_hostname]['SIM
Card'] }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: api_response_sim

- name: □□□□□□□□ IMSI
  set_fact:
    imsi: "{{ api_response_sim.json.itemtext2 }}"
    iccid: "{{ api_response_sim.json.itemtext1 }}"
```

□□□□□□

- □□ SIM □□□ ID 5001
- □□ SIM □□□□□
  - `itemtext1` = ICCID□SIM □□□
  - `itemtext2` = IMSI□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□□□□

- IMSI □□□ HSS□□□□□□□□□□□□□□□□
- ICCID □□□□□□□□□□□□□□□□
- □□□□□MSISDN□□□□□□□□□□□□

□□ **5**□□□□□ **UUID**

```
- name: □□ UUID □□
  set_fact:
    uuid: "{{ 99999999 | random | to_uuid }}"

- name: □□□□ UUID
  set_fact:
    service_uuid: "Local_Mobile_SIM_{{ uuid[0:8] }}"
```

□□□□□□

- □□□□ UUID
- □□□□ `Local_Mobile_SIM_a3f2c1d8` □ service_uuid

□□□□

- □□ UUID □ OCS/CGRateS □□□□□□□
- □□□□□□□□
- □□□□□□□□□□□□

□□ **6**□□ **OCS** □□□□□

```yaml
- name: □ OCS □□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    headers:
      Content-Type: "application/json"
    body:
      {
        "method": "ApierV2.SetAccount",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "ActionPlanIds": [],
          "ExtraOptions": {
            "AllowNegative": false,
            "Disabled": false
          },
          "ReloadScheduler": true
        }]
      }
  register: ocs_create_response
```

□□□□□□□

- □□ CGRateS JSON-RPC API
- □□□□ service_uuid □□□□
- □□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□□

□□□□

- OCS □□□□□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□□□□□
- □□□□□□□□□□□□□

□□ **7**□□□□□□□

```
- name: □□ 20GB □□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Tenant": "{{ crm_config.ocs.ocsTenant }}",
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "DATA_20GB_Monthly",
            "Value": 21474836480,
            "ExpiryTime": "+720h",
            "Weight": 10,
            "DestinationIDs": "*any"
          }
        }]
      }
```

□□□□□□

- □□□□□ 20GB □□□□
- □□21474836480 □□□20 * 1024 * 1024 * 1024□
- □ 720 □□□30 □□□□□
- □□ 10□□□□□□□□□

□□ **8**□□□□□□□□□□

```
- name: □□□□□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Account": "{{ service_uuid }}",
          "BalanceType": "*voice",
          "Balance": {
            "ID": "VOICE_Unlimited",
            "Value": 999999999,
            "ExpiryTime": "+720h"
          }
        }]
      }
```

- □□ 999,999,999 □□□□□□□□□□□□□□□
- □ 30 □□□□

**□□ 9□□ CRM □□□□□□□□**

```
- name: □□ API □□□□
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/service/"
    method: PUT
    body_format: json
    headers:
      Authorization: "Bearer {{ access_token }}"
    body:
      {
        "customer_id": "{{ customer_id }}",
        "product_id": "{{ product_id }}",
        "service_name": "□□ - {{ phone_number }}",
        "service_type": "mobile",
        "service_uuid": "{{ service_uuid }}",
        "service_status": "Active",
        "service_provisioned_date": "{{ provision_datetime }}",
        "retail_cost": "{{ monthly_cost }}",
        "wholesale_cost": "{{
api_response_product.json.wholesale_cost }}",
        "icon": "fa-solid fa-sim-card"
      }
  register: service_creation_response
```

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- □□□□□□□□□□
- □□ `service_uuid` □□□ OCS
- □□□□□□□□□□
- □□□□□□“□□”
- □□ `service_id` □□□□□□

□□ **10**□□□□□□□□□

```
- name: □ SIM □□□□□□□
  uri:
    url: "{{ crm_config.crm.base_url
}}/crm/inventory/inventory_id/{{ hostvars[inventory_hostname]['SIM
Card'] }}"
    method: PATCH
    body_format: json
    headers:
      Authorization: "Bearer {{ access_token }}"
    body:
      {
        "service_id": "{{
service_creation_response.json.service_id }}",
        "customer_id": "{{ customer_id }}",
        "item_state": "Assigned"
      }
```

□□□□□□□

- □□ SIM □□□□□□
- □ `service_id` □□□□ SIM □□□□□□
- □□□□“□□□”□□□“□□□”
- □□□□□□□□□□□□□□

□□□□

- □□□□ SIM □□□□□□□□
- □□□□□□□□□□
- □□□□□□□□□□

□□ **11**□□□□□□□□□□

```
- name: □□□□□□□□□
  uri:
    url: "{{ crm_config.crm.base_url }}/crm/transaction/"
    method: PUT
    body_format: json
    headers:
      Authorization: "Bearer {{ access_token }}"
    body:
      {
        "customer_id": "{{ customer_id }}",
        "service_id": "{{
service_creation_response.json.service_id }}",
        "title": "{{ package_name }} - □□",
        "description": "□□□□",
        "retail_cost": "{{ setup_cost }}",
        "wholesale_cost": "{{
api_response_product.json.wholesale_setup_cost }}"
      }
```

□□□□□□

- □□ £0.00 □□□□□□□□□□□□□
- □□ £1.00 □□□□□
- □□□□□□□□□□□

□□ **12**□□□□□□□□□□

```
rescue:
  - name: □□□□□□□ OCS □□□□
    uri:
      url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
      method: POST
      body:
        {
          "method": "ApierV2.RemoveAccount",
          "params": [{
            "Account": "{{ service_uuid }}"
          }]
        }

  - name: □□□□
    fail:
      msg: "□□□□□□□□□ OCS □□"
```

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- □□□□□□□□□□□□□□□□
- □□□□□□□ OCS □□
- □□□□□□“□□□”
- □□□□□□□□□□□

□□□

- □□ OCS □□□□□□
- □□□□□□□□□□□□□
- □□□□□□□

# □□□□□□□□□

□□□□□□□□□□□

**1. OCS □□□CGRateS□□**

- □□ ID：`Local_Mobile_SIM_a3f2c1d8`
- □□□
  - 20GB □□□□ 30 □□□□□

- □□□□□999M □□□ 30 □□□□□
- □□□□□999M □□□□□ 30 □□□□□

**2. CRM □□□□□**

- □□ ID□1234
- □□□John Doe□customer_id: 123□
- □□□□□□□□ 20GB□product_id: 42□
- □□□□□“□□ - +44 7700 900123”
- □□ UUID□`Local_Mobile_SIM_a3f2c1d8`
- □□□□□
- □□□□□£15.00□□□□□£5.00□□□□
- □□□£10.00/□

**3. □□□□□**

- SIM □ 5001□□□□□□ 1234□□□ 123
- □□□□ 5002□□□□□□ 1234□□□ 123

**4. □□□□□**

- □□□□□□□□□
- □□□□□□□□□

**5. □□□□□□□**

- □□□□□□□□□□□□□□
- □□ 20GB □□□□
- □□□□□□□□□□
- □□□□□□□□□□
- □□□□□□□□□

# □□ 3□□□□□□□□□

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# □□□□□□□□

□□□□□□□ 20GB □□□□ 18GB□□□□□□“5GB □□□□”□□□□□

**1.** □□□□□□□

- □□“□□ - +44 7700 900123”□□□□
- □□□□□□□□□□□20GB □□□ 18GB□90%□
- □□“□□□□□□”□“□□”

**2.** □□□□□□□□□□

□□□□□□□□□□

- `category = "addon"`
- `service_type = "mobile"`□□□□□□□□
- `residential = true`□□□□□□□□□□□
- `enabled = true`

□□□□□“5GB □□□□ - £5.00”

**3.** □□□□□□□□

- □□“5GB □□□□”
- □□□□ £5.00
- □□□□□□□□

**4.** □□□□□□□□

□□□□ `play_topup_charge_then_action.yaml`□□□□□□

```
{
    "product_id": 43,  # 5GB □□□□□□
    "customer_id": 123,
    "service_id": 1234,  # □□□□
    "access_token": "eyJ...",
    "data_gb": 5,  # □□ provisioning_json_vars
    "days": 7      # □□ provisioning_json_vars
}
```

□□□□□□□□□□

- □□ `service_id`□□□□□□□□□□
- □□□□□
- □□□□□□□□□□□□□□

## □□□□□□□□□□

□□ **1**□□□□□□□□□

```
- name: □ CRM API □□□□□□
  uri:
    url: "http://localhost:5000/crm/service/service_id/{{
service_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: api_response_service

- name: □□□□□□
  set_fact:
    service_uuid: "{{ api_response_service.json.service_uuid }}"
    customer_id: "{{ api_response_service.json.customer_id }}"
```

□□□□

- □□ `service_uuid` □□□□□□□□□□ OCS □□
- □□□□□□□□□□□□□□□□
- □□□□□□□□

□□ **2**□□□□□□

```yaml
- name: □□□□□□□□□□□□
  uri:
    url: "http://localhost:5000/api/payments/methods/default?
customer_id={{ customer_id }}"
    method: GET
    headers:
      Authorization: "Bearer {{ access_token }}"
  register: api_response_payment_method

- name: □□□□□□□□ ID
  set_fact:
    payment_method_id: "{{
api_response_payment_method.json.data.payment_method_id }}"

- name: □□□□□
  uri:
    url: "http://localhost:5000/api/payments/charge"
    method: POST
    body_format: json
    headers:
      Authorization: "Bearer {{ access_token }}"
    body:
      {
        "customer_id": "{{ customer_id | int }}",
        "amount": 5.00,
        "currency": "USD",
        "payment_method_id": "{{ payment_method_id }}",
        "metadata": {
          "description": "5GB □□□□",
          "service_id": "{{ service_id | int }}",
          "product_id": "{{ product_id | int }}",
          "invoice": true
        }
      }
  register: charge_response

- name: □□□□□□
  assert:
    that:
      - charge_response.json.success == true
```

□□□□□□

- □□□□□□□□ Stripe □□□□
- □□□□ £5.00
- □□□□□□ £1.50 □□□□□□□□
- □□□□□□□□□□□
- □□□□□□□□□□
- □□□□□□□□□□□□□

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- □□□□□□□□□□□□□
- □□□□
- □□□□□□□□□□□□□

□□ **3□□ OCS** □□□□□□□

```
- name: □□ 5GB □□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body_format: json
    body:
      {
        "method": "ApierV1.AddBalance",
        "params": [{
          "Account": "{{ service_uuid }}",
          "BalanceType": "*data",
          "Balance": {
            "ID": "DATA_5GB_Boost_{{ uuid }}",
            "Value": 5368709120,
            "ExpiryTime": "+168h",
            "Weight": 20
          }
        }]
      }
```

□□□□□□□

- □□□□□ 5GB□5368709120 □□□
- □ 168 □□□7 □□□□□

- □□ 20□□□□□□□□□ - □□□□□□□□□□□□□□

□□□□□□□□□□□□

- □□□□□□□□ 2GB□□ 25 □□□□□□
- □□□□5GB□□ 7 □□□□□□
- □□□□□□7GB
- □□□□□□□□□□□□□□□□□□□□□

□□ **4**□□□□□

```
- name: □□□□□□□□□
  uri:
    url: "http://localhost:5000/crm/transaction/"
    method: PUT
    body_format: json
    headers:
      Authorization: "Bearer {{ access_token }}"
    body:
      {
        "customer_id": "{{ customer_id }}",
        "service_id": "{{ service_id }}",
        "title": "5GB □□□□",
        "description": "□□ 5GB □□□□□ 7 □",
        "retail_cost": 5.00,
        "wholesale_cost": 1.50
      }
```

□□□□□□

- □□ £5.00 □□□□□□
- □□ £1.50 □□□□□
- □□□□□□□□□□□□□

# □□□□□□□□□□□

1. □□□□□□□□□□□□□□□
2. □□□□□□□□
3. □□□□□□□□ OCS □□

4. □ CRM □□□□□
5. □□□□□□□□□□□□□□□□ 7GB

□□□□□

- □□□□□□□□£15 □□□£5 □□
- □□□□□□□□£5 □□□£1.50 □□

## □□□□□□□□□□□

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□□□□□

```
{
  "product_name": "□□ 10GB □□□□",
  "category": "addon",
  "retail_cost": 10.00,
  "contract_days": 30,
  "auto_renew": "true",
  "provisioning_play": "play_topup_charge_then_action"
}
```

□□□□ **ActionPlan**□

```
- name: □□□□□□□□ ActionPlan
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body:
      {
        "method": "ApierV1.SetActionPlan",
        "params": [{
          "Id": "ServiceID_{{ service_uuid }}__ProductID_{{
product_id }}__MonthlyRenewal",
          "ActionPlan": [{
            "ActionsId": "Action_{{ product_slug }}",
            "Years": "*any",
            "Months": "*any",
            "MonthDays": "*any",
            "WeekDays": "*any",
            "Time": "00:00:00",
            "Weight": 10
          }],
          "Overwrite": false,
          "ReloadScheduler": true
        }]
      }
```

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- □ OCS □□□□□□□
- □ 30 □□□ `Action_{{ product_slug }}`
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```
{
    "action": "deprovision",
    "service_id": 1234,
    "customer_id": 123,
    "service_uuid": "Local_Mobile_SIM_a3f2c1d8"
}
```

□□ `service.deprovisioning_play` □□□□□□□□□□□□□□□□□□

**4. Ansible □□□□□□**

```
- name: □□□□□□□□□
  hosts: localhost
  tasks:
    - name: □□ OCS □□
      uri:
        url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
        method: POST
        body:
          {
            "method": "ApierV2.SetAccount",
            "params": [{
              "Account": "{{ service_uuid }}",
              "ExtraOptions": { "Disabled": true }
            }]
          }

    - name: □□ ActionPlans□□□□□□□□
      uri:
        url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
        method: POST
        body:
          {
            "method": "ApierV1.RemoveActionPlan",
            "params": [{
              "Id": "ServiceID_{{ service_uuid }}__*"
            }]
          }

    - name: □□ CRM □□□□□□
      uri:
        url: "http://localhost:5000/crm/service/{{ service_id }}"
        method: PATCH
        body:
          {
            "service_status": "Deactivated",
            "service_deactivate_date": "{{ current_datetime }}"
          }

    - name: □□□□□□□
      uri:
        url: "http://localhost:5000/crm/inventory/inventory_id/{{
sim_card_id }}"
        method: PATCH
```

```
        body:
          {
            "service_id": null,
            "customer_id": null,
            "item_state": "Decommissioned"
          }
```

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1. □□ **OCS** □□ - □□□□□□□□□□□□
2. □□ **ActionPlans** - □□□□□□□
3. □□ **CRM** □□ - □□□“□□□”□□□□□
4. □□□□ - SIM □□□“□□□”□□□□□□□□□□

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```
- name: □□□□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body:
      {
        "method": "ApierV2.SetAccount",
        "params": [{
          "Account": "{{ service_uuid }}",
          "ExtraOptions": { "Disabled": true }
        }]
      }
```

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```
- name: □□ OCS □□
  uri:
    url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
    method: POST
    body:
      {
        "method": "ApierV2.RemoveAccount",
        "params": [{
          "Account": "{{ service_uuid }}"
        }]
      }
```

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- `enabled: true` - □□□□□□□□□
- `enabled: false` - □□□□□□□□□□□□

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- □□□□□□□ `enabled: false` □□□□□□□
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- `New` - □□□□□□□□□
- `In Stock` - □□□□□
- `Assigned` - □□□□□□□
- `Decommissioned` - □□□□□□□
- `Damaged` - □□□□□□□

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# Mailjet □ OmniCRM □□

OmniCRM □ **Mailjet** □□□□

4. □□□ `crm_config.yaml`

# □□□□□□□□

OmniCRM □□ **10** □□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

- **from_email** - □□□□□□□□□
- **from_name** - □□□□□□□
- **template_id** - Mailjet □□ ID□□□□
- **subject** - □□□□□□□

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```
api_crmCommunicationCustomerWelcome:
  from_email: "support@yourcompany.com"
  from_name: "Your Company Support"
  template_id: 5977509
  subject: "Welcome to Your Company"
```

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- `{{ var:customer_name }}` - □□□□□
- `{{ var:email }}` - □□□□□□□□□
- `{{ var:company_name }}` - □□□□□□
- `{{ var:login_url }}` - □□□□□□□□
- `{{ var:support_url }}` - □□□□□□

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```
api_crmCommunicationCustomerInvoice:
  from_email: "billing@yourcompany.com"
  from_name: "Your Company Billing"
  template_id: 6759851
  subject: "Your Invoice - "
```

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- `{{ var:customer_name }}` - □□□□□
- `{{ var:invoice_number }}` - □□ ID/□□
- `{{ var:invoice_date }}` - □□□□□□
- `{{ var:due_date }}` - □□□□□□
- `{{ var:total_amount }}` - □□□□
- `{{ var:invoice_url }}` - □□/□□□□ PDF □□□
- `{{ var:pay_url }}` - □□□□□□□□□

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```
api_crmCommunicationCustomerInvoiceReminder:
  from_email: "billing@yourcompany.com"
  from_name: "Your Company Billing"
  template_id: 6759852
  subject: "Payment Reminder - Invoice Overdue"
```

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- `{{ var:customer_name }}`
- `{{ var:invoice_number }}`
- `{{ var:due_date }}`
- `{{ var:days_overdue }}`
- `{{ var:total_amount }}`
- `{{ var:pay_url }}`

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```
api_crmCommunicationUserWelcome:
  from_email: "admin@yourcompany.com"
  from_name: "Your Company Admin"
  template_id: 5977510
  subject: "Welcome to the Team"
```

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- `{{ var:user_name }}` - □□□□□□□□
- `{{ var:email }}` - □□□□□□□□□□
- `{{ var:role }}` - □□□□□
- `{{ var:login_url }}` - □□□□□□□□□
- `{{ var:temp_password }}` - □□□□□□□□□□
- `{{ var:support_email }}` - IT □□□□

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```
api_crmCommunicationUserPasswordReset:
  from_email: "noreply@yourcompany.com"
  from_name: "Your Company Security"
  template_id: 5977511
  subject: "Password Reset Request"
```

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- `{{ var:user_name }}`
- `{{ var:reset_url }}` - □□□□□□□□□□□□□□□□ 1 □□□
- `{{ var:expiry_time }}` - □□□□□□□□

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```
api_crmCommunicationUserPasswordResetSuccess:
  from_email: "noreply@yourcompany.com"
  from_name: "Your Company Security"
  template_id: 5977512
  subject: "Password Changed Successfully"
```

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- `{{ var:user_name }}`
- `{{ var:change_date }}` - □□□□□□□/□□
- `{{ var:ip_address }}` - □□□ IP □□□□□□
- `{{ var:support_email }}` - □□□□□□□□□□

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```
api_crmCommunicationUserPasswordChange:
  from_email: "noreply@yourcompany.com"
  from_name: "Your Company Security"
  template_id: 5977513
  subject: "Password Change Notification"
```

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- `{{ var:user_name }}`
- `{{ var:change_date }}`
- `{{ var:changed_by }}` - “□□”□□□□□

- `{{ var:support_email }}`

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```
api_crmCommunicationEmailVerification:
  from_email: "noreply@yourcompany.com"
  from_name: "Your Company"
  template_id: 5977514
  subject: "Verify Your Email Address"
```

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- `{{ var:user_name }}`
- `{{ var:verification_url }}` - □□□□□□□□□□
- `{{ var:verification_code }}` - □□□□□□□□□□□□□□□

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```
api_crmCommunicationsBalanceExpired:
  from_email: "support@yourcompany.com"
  from_name: "Your Company Support"
  template_id: 5977515
  subject: "Your Service Balance Has Expired"
```

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- `{{ var:customer_name }}`
- `{{ var:service_name }}` - □□□□□□□
- `{{ var:expiry_date }}`
- `{{ var:balance_type }}` - “□□”□“□□”□“□□”□
- `{{ var:renewal_url }}` - □□/□□□□□

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```
api_crmCommunicationsBalanceLow:
  from_email: "support@yourcompany.com"
  from_name: "Your Company Support"
  template_id: 5977516
  subject: "Low Balance Alert"
```

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- `{{ var:customer_name }}`
- `{{ var:service_name }}`
- `{{ var:current_balance }}`
- `{{ var:threshold }}`
- `{{ var:balance_type }}`
- `{{ var:topup_url }}` - □□□□□□□

**eSIM □□□**

□ eSIM □□□□□□□□□□□□

```
api_crmCommunicationEsimDelivery:
  from_email: "support@yourcompany.com"
  from_name: "Your Company Support"
  template_id: 0
  subject: "Your eSIM is Ready"
```

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- □ eSIM □□□□□□□

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- `{{ var:customer_name }}` - □□□□□
- `{{ var:iccid }}` - eSIM ICCID
- `{{ var:activation_code }}` - LPA □□□□□□□
- `{{ var:has_qr_code }}` - □□□□□□□□□□□□□□□□□
- `{{ var:has_activation_code }}` - □□□□□□□□□□□□□□□

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□ `template_id` □ `0`□□□□□□□□□□□□□OmniCRM □□□□□□□□ HTML □□□□□□□ eSIM QR □□□□□□□□□□□□□□□□□□ `crm_config.yaml` □□ `branding` □□□□□□□□□□□□□□□□ □□□□□

# □□ Mailjet □□□□□□

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## □ 1 □□□ Mailjet □□□□□

1. □□ Mailjet □□□
2. □□□ **Email Templates → Transactional Templates**
3. □□ **Create a New Template**
4. □□ **Code your own template**□□□□□□□□□□ **Use template builder**

# □ 2 □□□□□□

□□ Mailjet □□□□□□□ HTML □□□□□□□□□□□□

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- □□□ - □□ `{{ var:customer_name }}` □ `{{ var:user_name }}` □□□
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```
<!DOCTYPE html>
<html>
<head>
    <style>
        body { font-family: Arial, sans-serif; }
        .button { background-color: #4CAF50; color: white;
padding: 14px 28px; }
    </style>
</head>
<body>
    ![Logo](https://yourcompany.com/logo.png)

    <h2>Password Reset Request</h2>

    <p>Hello {{ var:user_name }},</p>

    <p>We received a request to reset your password. Click the
button below to create a new password:</p>

    <a href="{{ var:reset_url }}" class="button">Reset
Password</a>

    <p>This link expires in {{ var:expiry_time }}.</p>

    <p>If you didn't request this, please ignore this email.</p>

    <hr>
    <p style="font-size: 12px; color: #666;">
        Your Company | support@yourcompany.com<br/>
        123 Business St, City, Country
    </p>
</body>
</html>
```

## □ 3 □□□□□□ ID

1. □ Mailjet □□□□□
2. □□ **Template ID**□□□□□□ `5977509`□
3. □□ ID □□□ `crm_config.yaml`

## □ 4 □□□□□□

1. □ Mailjet □□□ **Test Email** □□
2. □□□□□□□□□□
3. □□□□□□□□□□□□
4. □□□□□□□□□□

## □ 5 □□□ OmniCRM □□□

□□□□□□□□ `crm_config.yaml`□

```
mailjet:
  api_key: your_api_key
  api_secret: your_secret

  api_crmCommunicationUserPasswordReset:
    from_email: "noreply@yourcompany.com"
    from_name: "Your Company Security"
    template_id: 5977511
    subject: "Password Reset Request"
```

□□ OmniCRM API □□□□□□□

```
cd OmniCRM-API
sudo systemctl restart omnicrm-api
```

# □□□□□□CRM□

□□□□□□□□□□□□□ Mailjet□□□□ ESP□□□□□□□□□□□□□ CRM □□□□□□□□□□□ Mailjet □□□□□

## □□ UI

**Customers → All Contacts** (`/contacts`) □□□□□□□□□□
□`marketing_consent_status`□`customer_status`□□ **Export CSV** □□□□□□□□□□□□□□
□□□□□□□□

## API

□□□□□□□ `VIEW_CUSTOMER_CONTACT` □□□

| □□ | □□ | □□ |
| --- | --- | --- |
| `GET` | `/crm/contact/search` | □□ `search`□`page`□`per_page`□`sort`□`order`□ `filters`□JSON□□□□□□□□□ |
| `GET` | `/crm/contact/export` | □□□□□□□□□ CSV □□□□□ 50,000 □□ |

**CSV** □□ `contact_id`□`customer_id`□`customer_name`□`customer_status`□□□□□□□ □□□□□□□□`contact_types`□`marketing_consent_status`□ `marketing_consent_granted_at`□`created`□`last_modified`□

□□□□□□□□□□□□□□□ `marketing_consent_status=granted`□□ CSV □□ Mailjet□□□□ ESP□□□□□□□□□□□□□□□□□

□□□`OmniCRM-API/services/contact_service.py`□`search_contacts`□ `export_contacts_csv`□□

# □□□□□□□□□□□

Mailjet □□□□□□□□□□□□□□□□□□

- `marketing_consent` - □□ □□□□

2. □□□□□□□□□□ `marketing_consent_service.request_consent`，`source='signup'`□□□ IP □□□□□□
3. □□□□ `marketing_consent` □□□`granted=True`、`confirmed_at=NULL`□□□□□□□□ URL □□□□□□□□□ `marketing_consent_status` □□□ `pending`。
4. □□□□□□□ Mailjet □□□□□□□□ `${public_url}${confirmation_url_path}?token=...`。
5. □□□□□□□□□□`GET /crm/marketing-consent/confirm` □□□□□`confirmed_at` □□□□□□□`marketing_consent_status` □□ `granted`。

## □□ B□□□□□□□□□□□□

□□□□□□“□□□□”□□□`/self-care/preferences`□□□□□

| □□ | □□ | □□ |
| --- | --- | --- |
| `GET` | `/crm/marketing-consent/me` | □□□□ + □□□□□□ |
| `POST` | `/crm/marketing-consent/me/subscribe` | □□□□□□□□□□□□□□□ |
| `POST` | `/crm/marketing-consent/me/unsubscribe` | □□□□□□□□ |

□□□□□□□ `granted=False` □□□□□□□□□□□ `revoked`□□□□□□□ OmniCRM □□□□□□□□□□ □□□□□□□

## □□ C□□□□□□□□□□□□□□

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| --- | --- | --- |
| `GET` | `/crm/oam/marketing-consent/stats` | □□□□□□ + □□□□ + □□ |
| `POST` | `/crm/oam/marketing-consent/re-permission?dry_run=true` | □□□□□□□□□□□ |
| `POST` | `/crm/oam/marketing-consent/re-permission?dry_run=false` | □□□□□□□□□□□ |

□□□□□□□□□ `none`□`revoked` □ `pending` □□□ `re_permission_skip_pending_within_hours` □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `Closed`□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `request_consent`□□□□□□□□□□□□□□□□□□□

## Prometheus □□

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| --- | --- | --- |
| `omnicrm_marketing_consent_events_total` | `event` | `confirmation_sent`□ `confirmation_faile` `revoked`□`token_rede` `token_invalid`□□□ |
| `omnicrm_marketing_consent_status_total` | `status` | □□ `none\|pending\|gra` □□□□□ `get_global_s` |

□□□ Mailjet API □□□`omnicrm_mailjet_api_*`□`omnicrm_mailjet_emails_sent_*`□□ Monitoring & Metrics □□□□□□□

# □□□

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- □□□ □□□ API □□□Mailjet □□□□□□□□ ID □□
- □□□
  - □□ `crm_config.yaml` □□ `api_key` □ `api_secret`
  - □□ Mailjet □□□□□□□
  - □□□□ ID □ Mailjet □□□
  - □□ API □□□□□□

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  - □□□□□□□□□□□□□□□□□□
  - □□ `{{ var:variable_name }}` □□
  - □□ OmniCRM □□□ API □□□□□□□□□
  - □ Mailjet □□□□□□□□□□

□□ **PDF** □□□

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□□ **Mailjet** □□□□□□□□□

- □□□ OmniCRM □□□□□□□□□□□ Mailjet
- □□□
  - □□□□□□□□□□□□□□□`granted` □□□
  - □□□□□□□□ **Customers → All Contacts** □□□□ `GET /crm/contact/export?filters={"marketing_consent_status":["granted"]}`
  - □□□□□□□□□□ UI □ CSV □□ Mailjet

# □□□□

- `administration_configuration` - □□□ Mailjet □□□□
- `payments_invoices` - □□□□□□□□□□
- `authentication_flows` - □□□□□□□□□□
- `customer_care` - □□□□□□□□□
- Monitoring & Metrics - Mailjet API □□□□□□□□□□□□□□□□

# □□□□

- Mailjet □□□ <https://dev.mailjet.com/>
- Mailjet API □□□ <https://dev.mailjet.com/email/reference/>

# □□□□□□□ API

OmniCRM □□ API □□□□□□□

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# □□□□

□□ API □□□□□□□□□□□

## API □□□□□□□□□□□□□□□□□

API □□□□□□□□□□□□□□□□□

```
curl -X POST "https://yourcrm.com/crm/notification/send" \
  -H "X-API-KEY: your-secure-api-key-minimum-32-characters" \
  -H "Content-Type: application/json" \
  -d '{
    "user_id": 123,
    "type": "provision_complete",
    "title": "Service Activated",
    "message": "Your mobile service has been successfully
activated",
    "link": "/services/167"
  }'
```

## Bearer Token □□□□

□□□□□□□□□□□□□□□□□□□ Bearer token □□□□□

□□□□ Bearer token □□□□□□□□□□ □□ API□

# API □□

## □□□□

□□□ `POST /crm/notification/send`

□□□□□ API □□ (X-API-KEY) □ Bearer Token

□□□ □□□□□□□□□□

□□□

```
{
  "user_id": 123,
  "type": "provision_complete",
  "title": "Service Activated",
  "message": "Your mobile service has been successfully
activated",
  "link": "/services/167",
  "metadata": {
    "service_id": 167,
    "provision_job_id": "prov-2026-00042",
    "duration_seconds": 45
  },
  "related_ticket_id": 42,
  "related_user_id": 5
}
```

□□□□

| □□ | □□ | □□ | □□ |
|---|---|---|---|
| `user_id` | □□ | □ | □□□□□□ ID |
| `type` | □□□ | □ | □□□□□□□□□□□ |
| `title` | □□□ | □ | □□□□□□□□ 255 □□□□ |
| `message` | □□□ | □ | □□□□□□ |
| `link` | □□□ | □ | □□□□□□ URL/□□ |
| `metadata` | □□ | □ | □□□□□□□□□JSON□ |
| `related_ticket_id` | □□ | □ | □□□□ ID |
| `related_user_id` | □□ | □ | □□□□ ID□□□□□□□□□□□□ |

□□□□

| □□ | □□ | □□□□ |
| --- | --- | --- |
| `provision_complete` | □□□□□□ | Ansible playbook □□ |
| `provision_failed` | □□□□ | □□□□□□ |
| `ticket_mention` | □□□□□□ @□□ | □□□□ |
| `ticket_assigned` | □□□□□□□ | □□□□□ |
| `ticket_updated` | □□□□□ | □□□□□□□ |
| `customer_reply` | □□□□□□ | □□□□ |
| `system_alert` | □□□□□□□ | □□□□□□ |
| `billing_invoice` | □□□□□ | □□□□□□ |
| `billing_payment` | □□□□ | □□□□ webhook |
| `service_expiring` | □□□□□□ | □□□□ |
| `custom` | □□□□□□□ | □□□□□□ |

□□□□

□□□ `201 Created`

```
{
  "result": "Success",
  "message": "Notification sent successfully",
  "notification": {
    "notification_id": 1234,
    "user_id": 123,
    "type": "provision_complete",
    "title": "Service Activated",
    "message": "Your mobile service has been successfully
activated",
    "link": "/services/167",
    "metadata": {
      "service_id": 167,
      "provision_job_id": "prov-2026-00042",
      "duration_seconds": 45
    },
    "is_read": false,
    "created_at": "2026-01-11T14:30:00Z"
  }
}
```


□□□□

**□□□□□□ (400 Bad Request)□**


```
{
  "result": "Failed",
  "reason": "user_id is required"
}
```


**□□□□□ (404 Not Found)□**


```
{
  "result": "Failed",
  "reason": "User 999 not found"
}
```


**□□□□□□ (401 Unauthorized)□**

```
{
  "message": "Invalid API key"
}
```

# □□□□

## Python □□

```python
import requests

# □□
CRM_URL = 'https://yourcrm.com'
API_KEY = 'your-secure-api-key-minimum-32-characters'

def send_notification(user_id, notification_type, title,
message=None, link=None, metadata=None):
    """□□ OmniCRM API □□□□□□□□"""

    headers = {
        "Content-Type": "application/json",
        "X-API-KEY": API_KEY
    }

    payload = {
        "user_id": user_id,
        "type": notification_type,
        "title": title
    }

    # □□□□□□□
    if message:
        payload["message"] = message
    if link:
        payload["link"] = link
    if metadata:
        payload["metadata"] = metadata

    response = requests.post(
        f"{CRM_URL}/crm/notification/send",
        headers=headers,
        json=payload
    )

    if response.status_code == 201:
        print(f"✓ □□□□□□□: {response.json()}")
        return response.json()
```

```
    else:
        print(f"✗ □□□□□□□: {response.text}")
        response.raise_for_status()

# □□□□
if __name__ == "__main__":
    # □□□□□□□□□
    send_notification(
        user_id=123,
        notification_type="provision_complete",
        title="□□□□□□□□",
        message="□□ ID 167 □□□□□□□□□",
        link="/services/167",
        metadata={
            "service_id": 167,
            "provision_job_id": "prov-2026-00042",
            "duration_seconds": 45,
            "playbook": "mobile_service_activation"
        }
    )
```

## Bash/cURL □□

```
#!/bin/bash

# □□
CRM_URL="https://yourcrm.com"
API_KEY="your-secure-api-key-minimum-32-characters"

# □□□□
curl -X POST "${CRM_URL}/crm/notification/send" \
  -H "X-API-KEY: ${API_KEY}" \
  -H "Content-Type: application/json" \
  -d '{
    "user_id": 123,
    "type": "provision_complete",
    "title": "Service Activated",
    "message": "Your mobile service has been successfully
activated",
    "link": "/services/167",
    "metadata": {
      "service_id": 167,
      "provision_job_id": "prov-2026-00042",
      "duration_seconds": 45
    }
  }'
```

## Node.js □□

```
const axios = require('axios');

const CRM_URL = 'https://yourcrm.com';
const API_KEY = 'your-secure-api-key-minimum-32-characters';

async function sendNotification(userId, type, title, options = {})
{
    try {
        const response = await axios.post(
            `${CRM_URL}/crm/notification/send`,
            {
                user_id: userId,
                type: type,
                title: title,
                message: options.message,
                link: options.link,
                metadata: options.metadata,
                related_ticket_id: options.relatedTicketId,
                related_user_id: options.relatedUserId
            },
            {
                headers: {
                    'X-API-KEY': API_KEY,
                    'Content-Type': 'application/json'
                }
            }
        );

        console.log('✓ □□□□□□:', response.data);
        return response.data;
    } catch (error) {
        console.error('✗ □□□□□□□:', error.response?.data ||
error.message);
        throw error;
    }
}

// □□□□
sendNotification(
    123,
    'provision_complete',
```

```
    '□□□□□□',
    {
        message: '□□□□□□□□□□□□□□',
        link: '/services/167',
        metadata: {
            service_id: 167,
            provision_job_id: 'prov-2026-00042',
            duration_seconds: 45
        }
    }
);
```

# □□□□

## Ansible □□ Playbook

□ Ansible playbook □□□□□□□□

```python
# □□□ Ansible □□□□□□□ Playbook □□□□□□
import requests

def notify_provisioning_complete(service_id, user_id,
success=True):
    """□□□□□□□□□□"""

    notification_type = "provision_complete" if success else
"provision_failed"
    title = "□□□□□□" if success else "□□□□□□□"
    message = f"□□ {service_id} □□ {'□□□□□' if success else '□□□
□'}"

    requests.post(
        "https://yourcrm.com/crm/notification/send",
        headers={"X-API-KEY": "your-api-key"},
        json={
            "user_id": user_id,
            "type": notification_type,
            "title": title,
            "message": message,
            "link": f"/services/{service_id}",
            "metadata": {
                "service_id": service_id,
                "playbook": "mobile_service_activation",
                "success": success
            }
        }
    )
```

## □□□□□□

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```
def notify_invoice_generated(customer_id, invoice_id, amount,
due_date):
    """□□□□□□□□□□□□"""

    # □□□□□□□□□□□
    user_id = get_customer_primary_contact_user_id(customer_id)

    if user_id:
        requests.post(
            "https://yourcrm.com/crm/notification/send",
            headers={"X-API-KEY": "your-billing-api-key"},
            json={
                "user_id": user_id,
                "type": "billing_invoice",
                "title": f"□□□ #{invoice_id}",
                "message": f"□□□□□ ${amount} □□□□□□□□□{due_date}",
                "link": f"/invoices/{invoice_id}",
                "metadata": {
                    "invoice_id": invoice_id,
                    "amount": amount,
                    "due_date": due_date,
                    "customer_id": customer_id
                }
            }
        )
```

## ��□□□□

□□□□□□□□□□

```python
def send_monitoring_alert(admin_user_ids, alert_title,
alert_message, severity="warning"):
    """□□□□□□□□□□□□"""

    for user_id in admin_user_ids:
        requests.post(
            "https://yourcrm.com/crm/notification/send",
            headers={"X-API-KEY": "your-monitoring-api-key"},
            json={
                "user_id": user_id,
                "type": "system_alert",
                "title": alert_title,
                "message": alert_message,
                "metadata": {
                    "severity": severity,
                    "alert_time": datetime.now().isoformat(),
                    "source": "prometheus_alertmanager"
                }
            }
        )

# □□□□□□□□□□
send_monitoring_alert(
    admin_user_ids=[1, 2, 3],
    alert_title="⚠ □□□□□□□",
    alert_message="□□□□□□□□□□□□□□□□ 85%",
    severity="warning"
)
```

## □□□□ Webhook

□□□□□□□□□□□□

```
from flask import Flask, request

app = Flask(__name__)

@app.route('/webhook/payment', methods=['POST'])
def payment_webhook():
    """□□□□□□ webhook"""

    payment_data = request.json

    if payment_data['status'] == 'succeeded':
        # □□□□□□□□
        requests.post(
            "https://yourcrm.com/crm/notification/send",
            headers={"X-API-KEY": "your-payment-webhook-api-key"},
            json={
                "user_id": payment_data['user_id'],
                "type": "billing_payment",
                "title": "□□□□□",
                "message": f"□□□□□ ${payment_data['amount']} □□□□
□",
                "link": f"/payments/{payment_data['payment_id']}",
                "metadata": {
                    "payment_id": payment_data['payment_id'],
                    "amount": payment_data['amount'],
                    "payment_method":
payment_data['payment_method']
                }
            }
        )

    return {"status": "ok"}
```

## □□□□□□

□□□□□□□□□□□□□□□□□□□

```python
import datetime
from sqlalchemy import create_engine, text

def check_expiring_services():
    """□□□□□□□□ 7 □□□□□□□□□□□□□□"""

    engine = create_engine("postgresql://...")

    # □□□□□□□□□□
    query = text("""
        SELECT s.service_id, s.end_date, u.id as user_id,
s.service_name
        FROM services s
        JOIN customer_contacts cc ON s.customer_id =
cc.customer_id
        JOIN users u ON cc.contact_id = u.contact_id
        WHERE s.end_date BETWEEN CURRENT_DATE AND CURRENT_DATE +
INTERVAL '7 days'
        AND s.deleted = false
    """)

    with engine.connect() as conn:
        results = conn.execute(query)

        for row in results:
            days_until_expiry = (row.end_date -
datetime.date.today()).days

            requests.post(
                "https://yourcrm.com/crm/notification/send",
                headers={"X-API-KEY": "your-automation-api-key"},
                json={
                    "user_id": row.user_id,
                    "type": "service_expiring",
                    "title": f"□□□□ {days_until_expiry} □□□□",
                    "message": f"□□ {row.service_name} □□
{row.end_date} □□",
                    "link": f"/services/{row.service_id}",
                    "metadata": {
                        "service_id": row.service_id,
                        "days_remaining": days_until_expiry,
                        "expiry_date": str(row.end_date)
                    }
```

```
                }
            )

# □□□□ cron □□
if __name__ == "__main__":
    check_expiring_services()
```

# □□□□

## API □□□□

1. □□□□□□□□□□□□□□□□□□□□□□□□

   ```
   openssl rand -base64 48
   ```

2. □□□□□□□□□□□□□□□□□□□□□□□□□□□□ API □□

3. □□□□□□□□□□□ `crm_config.yaml` □□□□□

4. □□□□□□□□□□□□ API □□□□□□□□□□□

5. □□□□□□□□□ API □□□□□□□□□□□□

6. □□□□□□□□□□ API □□□□□□□□□□

## □□□□

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5. □□ **API** □□□□□□□□□□□□□□□□□□

## □□

1. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
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3. □□□□□□□□□□□□□□□□□□□□ API □□
4. □□□□□□□ HTTP □□□□□□□□

# □□

## □□ API □□□□□

□□□□□□□□□□□□ API □□□□□□□□□

```
# □□□□□□□
curl -X POST "https://yourcrm.com/crm/notification/send" \
  -H "X-API-KEY: your-api-key" \
  -H "Content-Type: application/json" \
  -d '{
    "user_id": 1,
    "type": "custom",
    "title": "□□□□",
    "message": "□□□□□□□□□□□□□□□□ API □□□□□□□"
  }'
```

□□□□□□201 Created□□□□□□□□□□

## □□□□□□

□□□□□□□ ID □□□□□□□□□□

```
# □□□□□□□□
response = send_notification(
    user_id=1,  # □□□□□□□
    notification_type="custom",
    title="□□□□□",
    message="□□□□□ API □□"
)

print(f"□□ ID: {response['notification']['notification_id']}")
```

□□□□□□□□□□□ OmniCRM□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□

**□□□401 Unauthorized**

- □□□ □□□□□□□ API □□
- □□□□□□ □□ `crm_config.yaml` □□□□□□□ API □□
- □□□ □□ API □□□□□□ 32 □□□

**□□□404 □□□□□□**

- □□□ □□□ user_id
- □□□□□□ □□□□□□□□□□□□□□□□
- □□□ □□□□□□□`SELECT id FROM users WHERE id = ?`

**□□□400 Bad Request - "user_id is required"**

- □□□ □□□□□□□□□□
- □□□□□□ □□□□□□□□□□user_id□type□title
- □□□ □□ JSON □□□□□□□

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- □□□ □□□□□□□□□□□□□
- □□□□□□ □□□□□□□□□□
- □□□ □□□□□□□`SELECT * FROM notifications WHERE user_id = ? ORDER BY created_at DESC`

**□□□500 Internal Server Error**

- □□□ □□□□□□□
- □□□□□□ □□ CRM □□□□□□□□□□□□□□
- □□□ □□ `/var/log/omnicrm/api.log` □□□□

# API □□□□

## □□

| □□ | □□ | □□ | □□□□ |
|---|---|---|---|
| POST | `/crm/notification/send` | □□□□□□□□ | API □□□ Bearer |
| GET | `/crm/notification/` | □□□□□□□□□□ | Bearer |
| GET | `/crm/notification/unread-count` | □□□□□□ | Bearer |
| POST | `/crm/notification/{id}/mark-read` | □□□□□□□□ | Bearer |
| POST | `/crm/notification/mark-all-read` | □□□□□□□□ | Bearer |
| DELETE | `/crm/notification/{id}` | □□□□ | Bearer |

## □□□□

- □□□□□ □□□□□ API □□□□□□□□
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- □□□□□□Ansible □□
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- RBAC□□□□□□

# □□□□

□□□□□ OmniCRM □□□□□□□□□□□□□□□ 50 □□□□

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# □□□□□

OmniCRM API □□□□□□□□ Prometheus □□□□□□□□

□□:

- `status` - □□□□□□: `success`, `failed`, `running`

□□: □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

**omnicrm_provision_job_duration_seconds**

□□: □□□

□□:

- `playbook` - □□□ Ansible □□□□
- `status` - □□□□□□: `success`, `failed`

□: `[1, 5, 10, 30, 60, 120, 180, 300, 600]` □□1□□10□□□

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**omnicrm_provision_jobs_active**

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**omnicrm_provision_tasks_total**

□□: □□□

□□:

- `playbook` - Ansible □□□□
- `status` - □□□□: `ok`, `failed`, `ignored`

□□: □□□□□□□□ Ansible □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

**omnicrm_provision_errors_total**

□□: □□□

□□:

- `error_type` - □□□□□: `fatal`, `task_failed`, `timeout`
- `playbook` - Ansible □□□□

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## 2. □□□□□□

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**omnicrm_db_errors_total**

□□: □□□

□□:

- `error_type` - □□□□□□□□
- `operation` - □□□□□□□: `connection_error`, `query_error` □□

□□: □□□□□□□□□□

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# 3. OCS/CGRateS □□

OCS□□□□□□□□□□□□□□ CGRateS □□□□□□□□□□□□□□□□□□□□□□□□ Billing Overview □ CGRateS Integration□

**omnicrm_ocs_api_calls_total**

□□: □□□

□□:

- `method` - OCS API □□: `GetBalance`, `SetBalance`, `SetAccount`, `RemoveAccount` □□
- `status` - □□□□: `success`, `failed`

□□: OCS/CGRateS API □□□□□□□□□□ API □□ OCS □□□□□□

**omnicrm_ocs_api_duration_seconds**

□□: □□□

□□:

- `method` - OCS API □□: `GetBalance`, `SetBalance`, `GetAccount` □□

□: `[0.1, 0.25, 0.5, 1.0, 2.0, 5.0, 10.0, 30.0]` □

□□: OCS/CGRateS API □□□□□□□□□□□ API □□□□□□□□□□□□□□□

**omnicrm_ocs_api_errors_total**

□□: □□□

□□:

- `method` - □□□ OCS API □□
- `error_type` - □□□□: `timeout`, `connection_error`, `json_error`, `http_error` □□

□□: OCS/CGRateS API □□□□□□□ OCS API □□□□□□□□□□□□□□

**omnicrm_ocs_balance_queries_total**

□□: □□□

□□:

- `query_type` - □□□□□□: `single_account`, `multiple_accounts`

□□: □ OCS □□□□□□□□□□□□□□□□□□□□□□□□□□□□

**omnicrm_ocs_action_plan_operations_total**

□□: □□□

□□:

- `operation` - □□□□□□: `create`, `remove`, `query`

□□: □□□□□□□□□□□□ CGRateS □□□□□□□□□□□□□□□□□□□□□□□□□□

---

# 4. Stripe □□□□

Stripe □□□□□□□□□□□□□□□□□□□□□□□□□□□□ Payment System Guide □ Payment Methods□

**omnicrm_stripe_api_calls_total**

□□: □□□

□□:

- `operation` - Stripe □□: `create_customer`, `charge`, `refund`, `update_payment_method` □□
- `status` - □□□□: `success`, `failed`

□□: Stripe API □□□□□□□□□□□□□□□□□□□□

**omnicrm_stripe_api_duration_seconds**

□□: □□□

□□:

- `operation` - Stripe □□□□

□: `[0.1, 0.5, 1.0, 2.0, 5.0, 10.0, 30.0]` □

□□: Stripe API □□□□□□□□□□□□□□□□

**omnicrm_stripe_api_errors_total**

□□: □□□

□□:

- `operation` - □□□ Stripe □□
- `error_type` - □□□□: `card_declined`, `network_error`, `api_error` □□

□□: Stripe API □□□□□□□□□□□□□□□□□□□□

**omnicrm_stripe_payment_amount_cents**

□□: □□□

□□:

- `payment_type` - □□□□: `charge`, `refund`

□□: □□ Stripe □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

**omnicrm_stripe_payment_failures_total**

□□: □□□

□□:

- `reason` - □□□□: `card_declined`, `insufficient_funds`, `expired_card` □□

□□: □□□□□□□□ Stripe □□□□□□□□

---

# 5. Mailjet □□□□

Mailjet □□□□□□□□□□□□□□□□□□□□□□□□□□□□ Mailjet Integration□

**omnicrm_mailjet_api_calls_total**

□□: □□□

□□:

- `email_type` - □□□□□□□: `welcome`, `user_welcome`, `invoice`, `notification`
- `status` - □□□□: `success`, `failed`

□□: Mailjet API □□□□□□□□□ `@track_mailjet_call` □□□□□□□

**omnicrm_mailjet_api_duration_seconds**

□□: □□□

□□:

- `email_type` - □□□□□□□

□: `[0.1, 0.5, 1.0, 2.0, 5.0, 10.0, 30.0]` □

□□: Mailjet API □□□□□□□□□ Mailjet API □□□□□□□□□□□□□□□□□□□□□□□□

**omnicrm_mailjet_api_errors_total**

□□: □□□

□□:

- `email_type` - □□□□□□□
- `error_type` - □□□□

□□: Mailjet API □□□□□□□□□□□□□□□□□□□□□□

**omnicrm_mailjet_emails_sent_total**

□□: □□□

□□:

- `email_type` - □□□□□□□
- `template_id` - Mailjet □□ ID

□□: □□ Mailjet □□□□□□□□□□□□□□ API □□□□□□□□□□□□□□□□□□□□□□□□

**omnicrm_mailjet_email_recipients_total**

□□: □□□

□□:

- `email_type` - □□□□□□□

□□: □□□□□□□□□□□□□□□□□□□

---

# 6. □□□□□□

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- `job_type` - □□□□: `playbook_single`, `playbook_chain`, `periodic_task`

□□: □□□□□□□□□□□□□ `BackgroundJobTimer` □□□□□□□□□□

**omnicrm_background_jobs_active**

□□: □□□

□□:

- `job_type` - □□□□

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**omnicrm_background_job_duration_seconds**

□□: □□□

□□:

- `job_type` - □□□□
- `status` - □□□□: `success`, `failed`

□: `[1, 5, 10, 30, 60, 120, 180, 300, 600, 1800, 3600]` □□1□□1□□□

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**omnicrm_background_job_errors_total**

□□: □□□

□□:

- `job_type` - □□□□
- `error_type` - □□□□

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# 7. Flask HTTP □□□□□□□□

□□□□□ `prometheus-flask-exporter` □□□□□□□□□□□ API □ HTTP □□□

### flask_http_request_duration_seconds

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- `method` - HTTP □□: `GET`, `POST`, `PUT`, `DELETE` □□
- `endpoint` - Flask □□□□
- `status` - HTTP □□□

**□□:** □□ API □□□ HTTP □□□□□□□□□□□□□

### flask_http_request_total

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- `method` - HTTP □□
- `endpoint` - Flask □□□□
- `status` - HTTP □□□

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### flask_http_request_exceptions_total

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**□□:**

- `method` - HTTP □□
- `endpoint` - Flask □□□□

**□□:** HTTP □□□□□□□□□□□□□□□□□□□□□□□□

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# 8. API □□□□□□□□

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### omnicrm_api_errors_total

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- `endpoint` - API □□
- `error_type` - □□□□
- `status_code` - HTTP □□□

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### omnicrm_api_auth_failures_total

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- `auth_method` - □□□□: `jwt`, `api_key`, `ip_whitelist`
- `reason` - □□□□

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### omnicrm_api

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- `version` - API □□□□
- `environment` - □□□□: `production`, `staging`, `development`

□□: OmniCRM API □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

### □□□□

**update_db_pool_metrics(engine)**

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```yaml
- alert: HighProvisionFailureRate
  expr: |
    (
      rate(omnicrm_provision_jobs_total{status="failed"}[5m]) /
      rate(omnicrm_provision_jobs_total[5m])
    ) > 0.1
  for: 5m
  labels:
    severity: warning
  annotations:
    summary: "□□□□□□□□□"
    description: "{{ $value | humanizePercentage }} □□□□□□□□□"
```

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```yaml
- alert: DatabasePoolExhausted
  expr: omnicrm_db_pool_overflow > 0
  for: 2m
  labels:
    severity: critical
  annotations:
    summary: "□□□□□□□□□□□□"
    description: "□□□□□□□□□□□□□□□□□□□□□□□□□□□□"
```

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```yaml
- alert: SlowDatabaseQueries
  expr: |
    histogram_quantile(0.99,
      rate(omnicrm_db_query_duration_seconds_bucket[5m])
    ) > 1.0
  for: 5m
  labels:
    severity: warning
  annotations:
    summary: "□□□□□□□□□□"
    description: "99 □□□□□□□□□ {{ $value }}s"
```

**OCS API □□□**

```yaml
- alert: OCSAPIDown
  expr: |
    (
      rate(omnicrm_ocs_api_calls_total{status="failed"}[5m]) /
      rate(omnicrm_ocs_api_calls_total[5m])
    ) > 0.5
  for: 2m
  labels:
    severity: critical
  annotations:
    summary: "OCS API □□□□□"
    description: "{{ $value | humanizePercentage }} □ OCS API □□□□
□□"
```

**Stripe □□□□**

```yaml
- alert: StripePaymentFailures
  expr: rate(omnicrm_stripe_payment_failures_total[5m]) > 5
  for: 5m
  labels:
    severity: warning
  annotations:
    summary: "Stripe □□□□□□□"
    description: "{{ $value }} □□□□□□□"
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**Prometheus** □□□□□□

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□□□□□□□`/metrics` □□□□□□□□□□□□□□

```
curl http://localhost:5000/crm/metrics
```

□□ **Prometheus** □□□□□□□□

```
# □□ Prometheus □□□□
http://prometheus:9090/targets
```

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□□ Prometheus □□□□□□□□□□□□□□□□□□□□□□□□□□

```
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count by (__name__) ({__name__=~".+"})
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- Ansible Playbooks - □□□□□□□□
- API Documentation - API □□□□□
- Billing Overview - □□□□□□□□
- Payment System Guide - Stripe □□□□□□□□
- Mailjet Integration - □□□□□□□□□
- Administration Configuration - □□□□□□□

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**OmniCRM □□□□□□**

```
{
  "vendor": "stripe",
  "vendor_payment_method_id": "pm_1A2B3C4D5E6F",
  "payment_type": "card",
  "brand": "visa",
  "last4": "1234",
  "exp_month": 12,
  "exp_year": 2026,
  "name": "John Smith",
  "nickname": "Personal Card",
  "is_default": true
}
```

**OmniCRM □□□□□□□**

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## PCI □□□

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- `payments_process` - □□□□□□□□□□□□□□□□
- `payments_invoices` - □□□□□□□□□□□□□□□□
- `features_topup_recharge` - □□□□□□□□□□□□□
- `basics_payment` - □□□□□□□□□□
- `customer_care` - □□□□□□□□□□□□□□□□□□□

# OmniCRM □□□□ API □□

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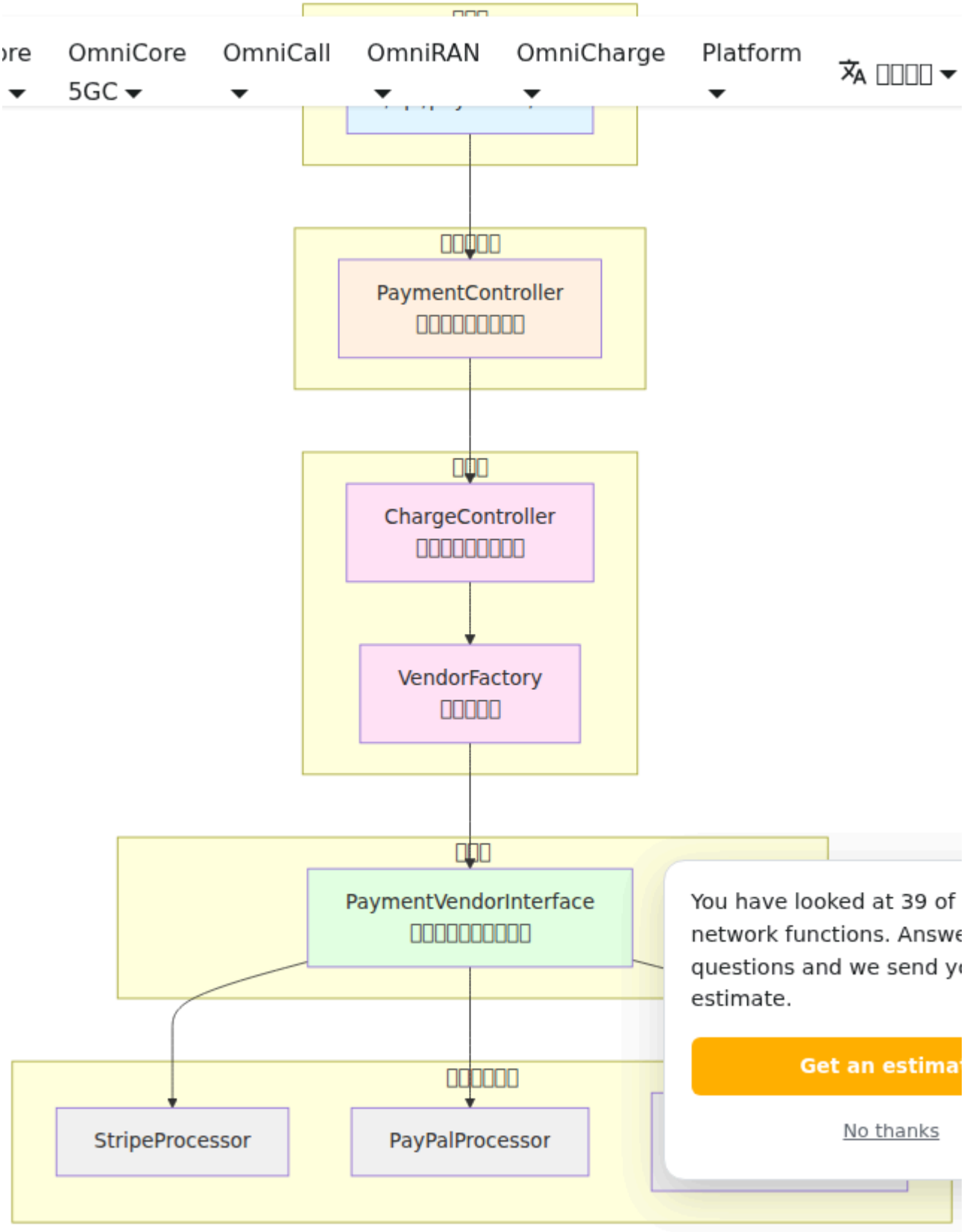
OmniCore
5GC
OmniCall
OmniRAN
OmniCharge
Platform
PaymentController
ChargeController
VendorFactory
PaymentVendorInterface
StripeProcessor
PayPalProcessor
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1. □□□□□□□□□□□ `PaymentVendorInterface`□□□□□□□□□□□□□□□□□□□
2. □ **VendorFactory** □□□□□□□□□□□□□□□
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```
# □□ Square □□□□
curl -X POST /api/payments/methods \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "vendor": "square",
    "payment_token": "sq_xxxxx"
  }'
```

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```
# □□□ Stripe□□□□
VITE_PAYMENT_VENDORS="stripe"

# □□□□ Stripe □ PayPal
VITE_PAYMENT_VENDORS="stripe,paypal"

# □□□ PayPal
VITE_PAYMENT_VENDORS="paypal"
```

□□□`VITE_PAYMENT_VENDORS` □□□ □□□ □□□□□□□□□□□□□□□□□ UI□

## Stripe □□

Stripe □□□□□□□□□□□□□□□ 3D Secure □□□□□□□□□

**1. □□ Stripe API □□**

- □ https://stripe.com □□
- □□□□□□ → API □□
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- □□□□□□□ □□□□□pk_live_/sk_live_□
- □□□□ API □□□□□□□□□□

**2. □□□□**

□□□ `crm_config.yaml`□□□□□□□□□□ `payment_vendors` □□□

```
stripe:
  secret_key: 'sk_live_YOUR_SECRET_KEY_HERE'
  publishable_key: 'pk_live_YOUR_PUBLISHABLE_KEY_HERE'
  currency: 'aud'
  statement_descriptor_suffix: 'YOUR_COMPANY'
```

API □□□□□□ `crm_config.yaml` □□ Stripe □□□□□□□□□□□□□ API□

**3.** □□□□

□□□ UI `.env` □□□

```
VITE_STRIPE_PUBLISHABLE_KEY=pk_live_YOUR_PUBLISHABLE_KEY_HERE
```

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# PayPal □□

PayPal □□□□□□□□ PayPal □□□□□□

**1.** □□ **PayPal API** □□

- □ https://developer.paypal.com/dashboard/ □□□□ REST API □□
- □□□□ □□□ **ID** □ □□□□□□
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**2.** □□□□

□□□ `crm_config.yaml`□□□□□□

```
paypal:
  client_id: 'YOUR_PAYPAL_CLIENT_ID'
  client_secret: 'YOUR_PAYPAL_CLIENT_SECRET'
  mode: 'sandbox'  # 'sandbox' □□□□□'live' □□□□
```

API □□□□□□ `crm_config.yaml` □□ PayPal □□□□□□□□□□□□□ API□

**3.** □□□□

□□□ UI `.env` □□□

```
VITE_PAYMENT_VENDORS="stripe,paypal"
VITE_PAYPAL_CLIENT_ID=YOUR_PAYPAL_CLIENT_ID
```

`VITE_PAYPAL_CLIENT_ID` □□ `crm_config.yaml` □□ `paypal.client_id` □□□□

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|---|---|---|
| **Stripe API** | `sk_test_` / `pk_test_` | `sk_live_` / `pk_live_` |
| **PayPal API** | `api-m.sandbox.paypal.com` | `api-m.paypal.com` |
| **PayPal `mode`** | `sandbox` | `live` |
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# PCI □□□

**OmniCRM □□□□ PCI □□□□**

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□□ - □□ Square □□

```
{
  "vendor": "square",
  "vendor_payment_method_id": "sq_card_abc123",
  "payment_type": "card"
}
```

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---

# □□□□

## □□□□

### PaymentMethod

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```
{
  "payment_method_id": 789,
  "customer_id": 123,
  "vendor": "stripe",                    // 'stripe', 'paypal' □□□
□□□□□□
  "vendor_payment_method_id": "pm_xxx", // □□□□□□ ID
  "payment_type": "card",                // 'card', 'paypal',
'ach', □
  "is_default": true,
  "card_brand": "visa",
  "card_last4": "4242",
  "card_exp_month": 12,
  "card_exp_year": 2025,
  "card_nickname": "My Visa Card",
  "status": "active"
}
```

**PaymentAuthorization**

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```
{
  "authorization_id": 301,
  "customer_id": 123,
  "payment_method_id": 789,
  "vendor": "stripe",                    // □□□□□□□
  "vendor_authorization_id": "auth_xxx", // □□□□□□ ID
  "amount": 200.00,
  "currency": "USD",
  "status": "authorized",                // 'authorized',
'captured', 'released'
  "authorized_at": "2025-12-27T10:00:00Z",
  "expires_at": "2026-01-03T10:00:00Z",
  "meta": {}
}
```

**PaymentCapture**

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```
{
  "capture_id": 103,
  "authorization_id": 301,
  "customer_id": 123,
  "payment_method_id": 789,
  "vendor": "stripe",
  "vendor_transaction_id": "ch_xxx",     // □□□□□□□ ID
  "amount": 200.00,
  "currency": "USD",
  "status": "succeeded",                 // 'succeeded', 'failed',
'refunded'
  "captured_at": "2025-12-27T10:30:00Z",
  "vendor_response": {},                 // □□□□□□□□□
  "meta": {}
}
```

**WalletAccount**

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```
{
  "wallet_account_id": 456,
  "customer_id": 123,
  "balance": 150.50,
  "currency": "USD",
  "auto_recharge_enabled": true,
  "auto_recharge_amount": 100.00,
  "auto_recharge_threshold": 10.00,
  "low_balance_warning_threshold": 10.00
}
```

**WalletLedger**

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```
{
  "ledger_id": 501,
  "customer_id": 123,
  "wallet_account_id": 456,
  "transaction_type": "credit",          // 'credit', 'debit',
'refund', 'adjustment'
  "amount": 100.00,
  "balance_before": 150.50,
  "balance_after": 250.50,
  "currency": "USD",
  "description": "Card top-up",
  "reference_type": "payment_capture",   // □□□□□□□□
  "reference_id": 103,
  "meta": {},
  "created_at": "2025-12-27T10:35:00Z"
}
```

---

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## □□

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□□□□□

```
{
  "invoice_id": 12345,
  "invoice_number": "INV-2025-000001",   // □□□□□□INV-YYYY-NNNNNN
  "customer_id": 123,
  "title": "□□□□□□□",
  "paid": true,                          // □□□□□
  "void": false,                         // □□□□□
  "payment_reference": "ch_xxxxx",       // □□/□□□□□ ID
  "payment_type": "stripe_capture",      // □□□□□□□
  "payment_time": "2025-12-27T10:30:00",
  "start_date": "2025-12-01",
  "end_date": "2025-12-31",
  "due_date": "2026-01-15",
  "retail_cost": 500.00,                 // □□□□□□
  "wholesale_cost": 250.00
}
```

□□□□□□□□□□□□□□ `INV-YYYY-NNNNNN` □□□□□□□□□□□□□□□□□□□□□□□□ 1 □ 1 □□□□□

## □□□□□□

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```
// 1. □□□□□□□□□□
{
  "transaction_id": 7001,
  "invoice_id": 12345,
  "retail_cost": 100.00,                  // □□ = □□□□
  "title": "□□□"
}

// 2. □□□□□□□□□□
{
  "transaction_id": 7002,
  "invoice_id": 12345,
  "retail_cost": -100.00,                 // □□ = □□□□□
  "title": "□□□□□□□□□ (12345)",
  "payment_type": "stripe_capture",
  "payment_reference": "ch_xxxxx"
}

// □□□□$0 □□ → □□□□□□□□□
```

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3. □□□□□□□□□□□□□□
4. □□□□□□□□□□
    - □□□□□□□□□□□□□□□□
    - □□□□□□

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```
{
  "customer_id": 123,
  "vendor": "stripe",                    // 'stripe', 'paypal' □□□
□□□□□□□
  "payment_token": "pm_xxxxx",           // □□□□ SDK □□□□□□□
  "is_default": false,                   // □□□□□□□□□□□□
  "card_nickname": "My Visa Card"        // □□□□□□□□
}
```

□□□201 □□□□

```
{
  "success": true,
  "message": "□□□□□□□□□□",
  "data": {
    "payment_method_id": 789,
    "customer_id": 123,
    "vendor": "stripe",
    "payment_type": "card",
    "card_brand": "visa",
    "card_last4": "4242",
    "card_exp_month": 12,
    "card_exp_year": 2025,
    "card_nickname": "My Visa Card",
    "is_default": false,
    "status": "active"
  }
}
```

# □□□□□□

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□□□`GET /api/payments/methods?customer_id={id}`

□□□

```
curl -X GET "https://your-domain.com/api/payments/methods?
customer_id=123" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□

```
{
  "success": true,
  "data": [
    {
      "payment_method_id": 789,
      "customer_id": 123,
      "vendor": "stripe",
      "payment_type": "card",
      "card_brand": "visa",
      "card_last4": "4242",
      "is_default": true
    },
    {
      "payment_method_id": 790,
      "customer_id": 123,
      "vendor": "paypal",
      "payment_type": "paypal",
      "paypal_email": "user@example.com",
      "is_default": false
    }
  ]
}
```

# □□□□□□□□

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□□□`GET /api/payments/methods/default?customer_id={id}`

□□□

```
curl -X GET "https://your-domain.com/api/payments/methods/default?
customer_id=123" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□

```
{
  "success": true,
  "data": {
    "payment_method_id": 789,
    "vendor": "stripe",
    "payment_type": "card",
    "card_brand": "visa",
    "card_last4": "4242",
    "is_default": true
  }
}
```

## □□□□□□□□

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□□□`PUT /api/payments/methods/set-default`

□□□

```
curl -X PUT https://your-domain.com/api/payments/methods/set-
default \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "payment_method_id": 790
  }'
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□□□□□",
  "data": {
    "payment_method_id": 790,
    "is_default": true
  }
}
```

## □□□□□□

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□□□`DELETE /api/payments/methods/{payment_method_id}?customer_id={id}`

□□□

```
curl -X DELETE "https://your-domain.com/api/payments/methods/789?
customer_id=123" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□□□□"
}
```

---

# □□□□ API

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## 1. □□□□□□□□□□

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□□□`POST /api/payments/charge`

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```
curl -X POST https://your-domain.com/api/payments/charge \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 50.00,
    "currency": "USD",
    "payment_method_id": 789,
    "metadata": {
      "order_id": "12345"
    }
  }'
```

□□□□

```
{
  "customer_id": 123,
  "amount": 50.00,
  "currency": "USD",                    // □□□USD
  "payment_method_id": 789,             // □□ - □□□□□□□□□□
  "vendor": "stripe",                   // □□□□ payment_token □□□
  "payment_token": "pm_xxxxx",          // □□ - □□□□□
  "save_method": false,                 // □□□□□□□□□□□□□
  "metadata": {
    "order_id": "12345"
  }
}
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□",
  "data": {
    "transaction_id": "ch_xxxxx",
    "capture_id": 101,
    "amount": 50.00,
    "currency": "USD",
    "status": "succeeded"
  }
}
```

## 2. □□□□□□□□□□□□□□

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□□□□`POST /api/payments/invoice`

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1. □□□□□□□
2. □□□□□□□□□
3. □□□□□□□□□□□□□
4. □□□□□□□□□
5. □□□□□□□□□□□□□

□□□□

```
curl -X POST https://your-domain.com/api/payments/invoice \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 200.00,
    "payment_method_id": 789,
    "metadata": {
      "invoice_id": 12345,
      "description": "□□□□"
    }
  }'
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□□□",
  "data": {
    "customer_id": 123,
    "service_amount": 200.00,
    "routing_mode": "hybrid",
    "initial_balance": 150.00,
    "wallet_portion_used": 150.00,       // □□□□□□□□□
    "card_portion_used": 50.00,          // □□□□□□□□□
    "charged_amount": 50.00,
    "wallet_credited": 50.00,
    "wallet_debited": 200.00,
    "final_balance": 0.00,
    "payment_method_used": true
  }
}
```

# 3. □□□□□□□□□□

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> □ **Playbook** □□□□□□□□□□□□□□□ Ansible playbook □□□□□□ □□□□□□□□

□ **1** □□□□□□□□□

□□□`POST /api/payments/authorize/hold`

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2. □□□□□□□□ - □□□□□□
3. □□□□□□□□
4. □□□□□□□□□□□□□□□□□□□□

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```
curl -X POST https://your-domain.com/api/payments/authorize/hold \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 200.00,
    "payment_method_id": 789,
    "use_wallet": true,
    "metadata": {
      "reservation_id": "RES-001"
    }
  }'
```

□□□□

```
{
  "customer_id": 123,
  "amount": 200.00,
  "currency": "USD",
  "payment_method_id": 789,                // □□ - □□□□□□□□□□
  "vendor": "stripe",                      // □□□□ payment_token □□□
  "payment_token": "pm_xxxxx",             // □□ - □□□□□
  "save_method": false,
  "use_wallet": true,                      // □□□□□□□□□□□□□□□□true□
  "metadata": {
    "reservation_id": "RES-001"
  }
}
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□□□□□□□□□□",
  "data": {
    "authorization_id": 301,
    "vendor_authorization_id": "auth_xxxxx",
    "amount": 200.00,
    "currency": "USD",
    "status": "authorized",
    "wallet_balance": 150.00,
    "wallet_to_use": 150.00,              // □□□□□□□□□
    "card_amount": 50.00,                 // □□□□□□□□
    "message": "□□□□□ $50□□□□□□□□□□□□□□□□ $200 □□□□□□□"
  }
}
```

□ **2** □□□□□□□

□□□`POST /api/payments/capture/{authorization_id}`

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1. □□□□□□□□□□□ - □□□□
2. □□□□□□□□□□□□□
3. □□□□□□□□□□□□□
4. □□□□/□□□□□□□□□

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```
curl -X POST https://your-domain.com/api/payments/capture/301 \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "amount": 200.00,
    "metadata": {
      "invoice": true,
      "title": "□□□□",
      "description": "3□□□",
      "wholesale_cost": 100.00,
      "contract_days": 3,
      "send_email": true
    }
  }'
```

□□□□

```
{
  "amount": 200.00,                          // □□ - □□□□□□□□□□
  "metadata": {
    "invoice": true,                         // □□□□□□□□□□□
    "create_transaction": true,              // □□□□□□□□
    "title": "□□□□",
    "description": "3□□□",
    "wholesale_cost": 100.00,
    "contract_days": 3,
    "send_email": true                       // □□□□□□□□□□
  }
}
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□",
  "data": {
    "capture_id": 103,
    "transaction_id": "ch_xxxxx",
    "authorization_id": 301,
    "amount": 200.00,
    "currency": "USD",
    "status": "succeeded",
    "wallet_credit": {                    // □□□□□□□
      "ledger_id": 401,
      "amount": 50.00
    },
    "wallet_debit": {                     // □□□□□□□□
      "ledger_id": 402,
      "amount": 200.00
    },
    "transaction": {                      // □□ invoice=true □□□
      "transaction_id": 7001
    },
    "invoice": {                          // □□ invoice=true □□□
      "invoice_id": 12345,
      "invoice_number": "INV-2025-000001"
    }
  }
}
```

**□ 3 □□□□□□□□□□□**

□□□`POST /api/payments/release/{authorization_id}`

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□□□

```
curl -X POST https://your-domain.com/api/payments/release/301 \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□",
  "data": {
    "authorization_id": 301,
    "vendor_authorization_id": "auth_xxxxx",
    "status": "released",
    "released_at": "2025-12-27T10:45:00Z"
  }
}
```

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```
curl -X POST https://your-domain.com/api/payments/topup \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 1,
    "amount": 5.00,
    "vendor": "stripe",
    "payment_token": "pm_xxxxx",
    "service_uuid": "hotspot-uuid",
    "imsi": "123456789012345",
    "days": 1,
    "metadata": {
      "is_rental": true,
      "billing_email": "user@example.com"
    }
  }'
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□□□□",
  "data": {
    "transaction_id": "ch_xxxxx",
    "authorization_id": 302,
    "capture_id": 104,
    "amount": 30.00,
    "status": "succeeded",
    "provision_result": {
      "success": true,
      "topup_result": {...},
      "service_uuid": "svc-uuid-123",
      "imsi": "123456789012345",
      "days": 30
    },
    "payment_method_saved": false        // □□/□□□ false
  }
}
```

## 5. □□□□□□□□□□

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□□□`POST /api/payments/rental`

□□□

```
curl -X POST https://your-domain.com/api/payments/rental \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "beneficiary_customer_id": 456,
    "charge_customer_id": 123,
    "amount": 75.00,
    "payment_method_id": 789,
    "service_description": "□□□□□□□",
    "metadata": {
      "rental_agreement_id": "RA-001"
    }
  }'
```

□□□□□□□□□□□□□□□□□□□□

```
curl -X POST https://your-domain.com/api/payments/rental \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "beneficiary_customer_id": 456,
    "amount": 75.00,
    "vendor": "stripe",
    "payment_token": "pm_xxxxx",
    "service_description": "□□□□□□□",
    "metadata": {
      "billing_email": "renter@example.com"
    }
  }'
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□□□□",
  "data": {
    "transaction_id": "ch_xxxxx",
    "amount": 75.00,
    "payment_method_saved": false        // □□□□□□□□□
  }
}
```

## 6. □□□□

□□□`POST /api/payments/refund`

□□□

```
curl -X POST https://your-domain.com/api/payments/refund \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "transaction_id": "ch_xxxxx",
    "vendor": "stripe",
    "amount": 50.00,
    "reason": "customer_request"
  }'
```

□□□□

```
{
  "transaction_id": "ch_xxxxx",          // □□□□□ ID
  "vendor": "stripe",                    // 'stripe', 'paypal', □
  "amount": 50.00,                       // □□ - □□□□□□□□□□
  "reason": "customer_request"           // □□□□□□
}
```

□□□200 OK□□

```
{
  "success": true,
  "message": "□□□□□",
  "data": {
    "refund_id": "re_xxxxx",
    "amount": 50.00,
    "status": "succeeded"
  }
}
```

---

# □□ API

□□□□□□□□□□ URL□`/api/wallet/`

## □□□□□□

□□□`GET /api/wallet/balance?customer_id={id}`

□□□

```
curl -X GET "https://your-domain.com/api/wallet/balance?
customer_id=123" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□

```
{
  "customer_id": 123,
  "balance": 150.50,
  "currency": "USD"
}
```

## □□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□`GET /api/wallet/info?customer_id={id}`

□□□

```
curl -X GET "https://your-domain.com/api/wallet/info?
customer_id=123" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□

```
{
  "customer_id": 123,
  "wallet": {
    "wallet_account_id": 456,
    "balance": 150.50,
    "currency": "USD",
    "auto_recharge_enabled": true,
    "auto_recharge_amount": 100.00,
    "auto_recharge_threshold": 10.00,
    "low_balance_warning_threshold": 10.00
  }
}
```

# □□□□

□□□□□□□□□□□□□□□□

□□□`POST /api/wallet/topup`

□□□□□□/PayPal → □□□□

□□□

```
curl -X POST https://your-domain.com/api/wallet/topup \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 100.00,
    "payment_method_id": 789
  }'
```

□□□□

```
{
  "customer_id": 123,
  "amount": 100.00,
  "currency": "USD",                    // □□□USD
  "payment_method_id": 789              // □□ - □□□□□□□□□
}
```

□□□200 OK□□

```
{
  "success": true,
  "payment": {
    "transaction_id": "ch_xxxxx",
    "amount": 100.00
  },
  "wallet": {
    "ledger_id": 503,
    "balance_after": 250.50,
    "customer_transaction_id": 7001
  },
  "message": "□□□□ 100.00 □□"
}
```

□□□□ □□□□□□`customer_transaction`□`payment_type=wallet_topup_card`□□□ `retail_cost`□`wallet_ledger_id` □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `card_capture_topup`□□□□□□□□□□□□

□□□□□□□□DELETE /crm/transaction/transaction_id/{transaction_id} □□□□□□□□□□□□□□□□ □□□□ □□□

# □□□□□□

□□□□□□□□□□□□□□□□

□□□GET /api/wallet/transactions?customer_id={id}&limit={n}&offset={n}&type={type}

□□□

```
curl -X GET "https://your-domain.com/api/wallet/transactions?
customer_id=123&limit=50&offset=0&type=credit" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□□□

- customer_id□□□□□□□□ ID
- limit□□□□□□□□□□□□□□□50□
- offset□□□□□□□□□□□□□□□0□
- type□□□□□□□□□□□□□□□'credit'□'debit'□'refund'□'adjustment'□

□□□200 OK□□

```
{
  "customer_id": 123,
  "count": 2,
  "transactions": [
    {
      "ledger_id": 501,
      "transaction_type": "credit",
      "amount": 100.00,
      "balance_before": 150.50,
      "balance_after": 250.50,
      "description": "□□□□",
      "reference_type": "payment_capture",
      "reference_id": 103,
      "created_at": "2025-12-27T10:35:00Z"
    },
    {
      "ledger_id": 502,
      "transaction_type": "debit",
      "amount": 50.00,
      "balance_before": 250.50,
      "balance_after": 200.50,
      "description": "□□□□",
      "reference_type": "service_charge",
      "reference_id": 789,
      "created_at": "2025-12-27T11:00:00Z"
    }
  ]
}
```


---

## □□□□

□□□□□□□□□□□□□□□ `delete_customer_transaction`□

□□□`DELETE /crm/transaction/transaction_id/{transaction_id}`

□□□

```
curl -X DELETE "https://your-
domain.com/api/transaction/transaction_id/7001" \
  -H "Authorization: Bearer YOUR_API_KEY"
```

□□□200 OK□□□□□□□□□□□□□□□□□□

```
{
  "result": "□□"
}
```

□□□200 OK□□□□□□□□□□□□□□□□□□

```
{
  "result": "□□",
  "wallet_reversal": {
    "wallet_reversed": true,
    "wallet_amount": 50.00,
    "wallet_ledger_id": 503
  }
}
```

□□□200 OK□□□□□□□□□□□□□□□□`payment_type=wallet_topup_card`□□

```
{
  "result": "□□",
  "wallet_reversal": {
    "wallet_reversed": true,
    "wallet_amount": 100.00,
    "wallet_ledger_id": 503,
    "refund": {
      "capture_id": 88,
      "vendor": "stripe",
      "vendor_transaction_id": "ch_xxxxx",
      "refund_id": "re_xxxxx",
      "status": "succeeded",
      "amount": 100.00
    }
  }
}
```

□□/□□□□

| □□□□ | `wallet_ledger_id` | □□□□□ | □□□□□□□ |
|---|---|---|---|
| □□□□/□□ | □ | □ | □ |
| □□□□□ `POST /wallet/topup` □ | □ | □□□□ | □ □ `wallet_topup_card` □ |
| □□/□□□□□□ | □ | □□□□ | □ |
| □□□□□□□□□ | □ | □□□□ | □ |
| □□/□□□□□□□□ | □□□□□ CT □ □ | □* | □ |

*□□□□□□ → □□ → □□□□□□□□□ `card_capture_topup` + `service_charge` □□□□□□□□□

□□□500□□

```
{
  "result": "□□",
  "Reason": "□□□□□□□□□□□0.00□□□□20.00"
}
```

- □□□□□"□□□□□□□□□□□□□"
- □□□□□□□□□□□□□□

## □□□□□□

| □□ | □□ | □□ |
|---|---|---|
| POST | `/api/payments/charge` | □□□□□□□□□ |
| POST | `/api/payments/invoice` | □□□□□□□□□□□□□□ |
| POST | `/api/payments/topup` | □□□□□ |
| POST | `/api/payments/authorize/hold` | □□□□□□ |
| POST | `/api/payments/capture/{id}` | □□□□ |
| POST | `/api/payments/release/{id}` | □□□□ |
| POST | `/api/payments/rental` | □□/□□□□□ |
| POST | `/api/payments/refund` | □□□□ |

## □□□□

| □□ | □□ | □□ |
|---|---|---|
| GET | `/api/wallet/balance?customer_id={id}` | □□□□□□ |
| GET | `/api/wallet/info?customer_id={id}` | □□□□□□ + □□ |
| POST | `/api/wallet/topup` | □□□□□□□□□□□□□□□ `wallet_topup_card` □□□□ |
| GET | `/api/wallet/transactions?customer_id={id}` | □□□□□□ |

## □□□□

| □□ | □□ | □□ |
| --- | --- | --- |
| PUT | `/api/transaction/` | □□□□□□□ |
| GET | `/api/transaction/` | □□□□□□□□□ |
| DELETE | `/api/transaction/transaction_id/{id}` | □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ |

## PayPal □□□□

| □□ | □□ | □□ |
| --- | --- | --- |
| POST | `/api/payments/paypal/vault/setup-token` | □□□□□ SDK □□ PayPal □□□□ |
| POST | `/api/payments/paypal/vault/finalize` | □□ PayPal □□□□□□□□□□ |
| POST | `/api/payments/paypal/vault/update-setup-token` | □□ 3DS/SCA □□□□□□□□ |

---

# □□□□

## □□ 1□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□ 30 □□□□□□□□

```
# □□□□□□□□□□□□□□□□□□□□□□□□□□□□
curl -X POST https://your-domain.com/api/payments/invoice \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 99.99,
    "metadata": {
      "service_id": 456,
      "contract_days": 30,
      "description": "30□□□□□"
    }
  }'
```

□□□

```
{
  "success": true,
  "message": "□□□□□□□□",
  "data": {
    "service_amount": 99.99,
    "wallet_portion_used": 50.00,        // □□□ $50
    "card_portion_used": 49.99,          // □□□ $49.99
    "final_balance": 0.00
  }
}
```

## □□ 2□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□

```
# □□□□□□□□□□
curl -X POST https://your-domain.com/api/payments/topup \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 149.99,
    "payment_method_id": 789,
    "service_uuid": "fiber-svc-uuid",
    "imsi": "123456789012345",
    "days": 30,
    "metadata": {
      "service_type": "fiber_internet"
    }
  }'
```

□□□

1. □□□□□ $149.99
2. □□□□□□□□□□
3. □□□□□□□ → □□□□
4. □□□□□□□ → □□□□□□□□□□

# □□ 3□□□□□□□

□□□□□□□□□ WiFi □□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
# □□□□□□□
curl -X POST https://your-domain.com/api/payments/topup \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 1,
    "amount": 5.00,
    "vendor": "stripe",
    "payment_token": "pm_xxxxx",
    "service_uuid": "hotspot-downtown",
    "imsi": "999999999999999",
    "days": 1,
    "metadata": {
      "is_rental": true,
      "billing_email": "user@example.com",
      "hotspot_location": "□□□□□□□"
    }
  }'
```

□□□

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- □□□□□□□ □
- □□□□□□□□ □
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## □□ 4□□□□□□□□□□ + □□□

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```
# □ 1 □□□□□ - □□□□□
curl -X POST https://your-domain.com/api/payments/authorize/hold \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 500.00,
    "use_wallet": true,
    "metadata": {
      "reservation_id": "RES-2025-001"
    }
  }'

# □□□{"authorization_id": 301, "status": "authorized"}

# □ 2a □□□□□□□ - □□
curl -X POST https://your-domain.com/api/payments/capture/301 \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "metadata": {
      "invoice": true,
      "title": "□□□□ - 3 □",
      "description": "302 □□□12 □ 27-30 □",
      "send_email": true
    }
  }'

# □ 2b □□□□□□□ - □□□□□
curl -X POST https://your-domain.com/api/payments/release/301 \
  -H "Authorization: Bearer YOUR_API_KEY"
```

## □□ 5□□□□□□□□□Stripe□

□□□□□□□□□□□□□□□□□ Visa □□

```
# □ 1 □□□□□□□ Stripe.js □□ Stripe □□
# const {token} = await stripe.createToken(cardElement);

# □ 2 □□□□□□□□□□□□
curl -X POST https://your-domain.com/api/payments/methods \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "vendor": "stripe",
    "payment_token": "pm_xxxxx",
    "is_default": true,
    "card_nickname": "□□ Visa"
  }'
```

# □□ 6□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□ 100 □□□

```
curl -X POST https://your-domain.com/api/wallet/topup \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 100.00
  }'
```

□□□

```
{
  "success": true,
  "payment": {
    "transaction_id": "ch_xxxxx",
    "amount": 100.00
  },
  "wallet": {
    "balance_after": 250.50
  },
  "message": "□□□□ 100.00 □□"
}
```

---

# □□□□

## □□□□□□

□□□□□400 □□□□□□□

```
{
  "error": "□□□□□□□□□□□50.00□□□□200.00"
}
```

□□□□□400 □□□□□□□

```
{
  "error": "□□□□□□□□□□□□"
}
```

□□□□□400 □□□□□□□

```
{
  "error": "customer_id □ amount □□□□"
}
```

□□□□404 □□□□□

```
{
  "error": "□□ 999 □□□□"
}
```

□□□□□□500 □□□□□□□□□□

```
{
  "error": "□□□□□□□□□□□□"
}
```

---

# □□□□□□□□□□□

## □□□□

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**1. □□□□□□□□□Stripe/PayPal□**

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□□□□□□□□□□□□□□□□□□□□PayPal □□□□

□□□`POST /api/payments/refund`

□□□

```
curl -X POST https://your-domain.com/api/payments/refund \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "transaction_id": "ch_xxxxx",
    "vendor": "stripe",
    "amount": 100.00,
    "reason": "customer_request"
  }'
```

□□□

- Stripe/PayPal □□□□□□□□□□
- □□□ 5-10 □□□□□□□□□□/PayPal □□□□□□□□
- □□□□□□□□□
- □ `PaymentCapture` □□□□□□□□□□□□

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**2.** □□□□□

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## □□□□□□

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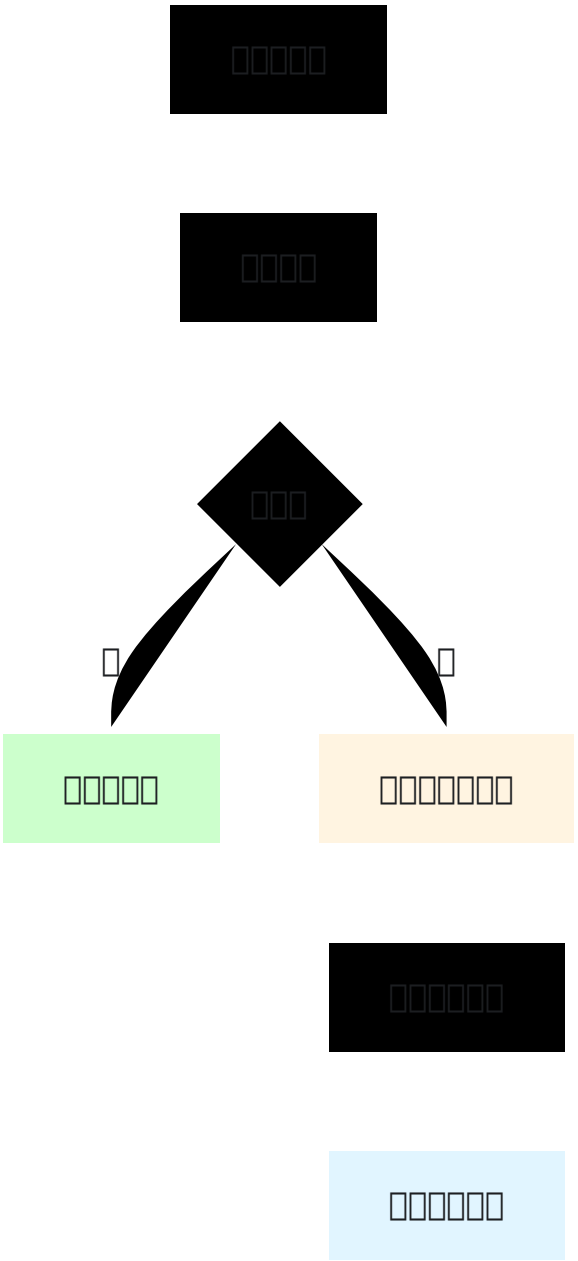


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1. □□□□ $100 □□□□□□
2. □□□□□□□□
3. □□□□□
4. □□□□ $100 □□□□□□5-10 □ + □□□□□□□□
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    - □□□□□□□□□□□□□
    - □□□□□□
    - □□□□□□□□□

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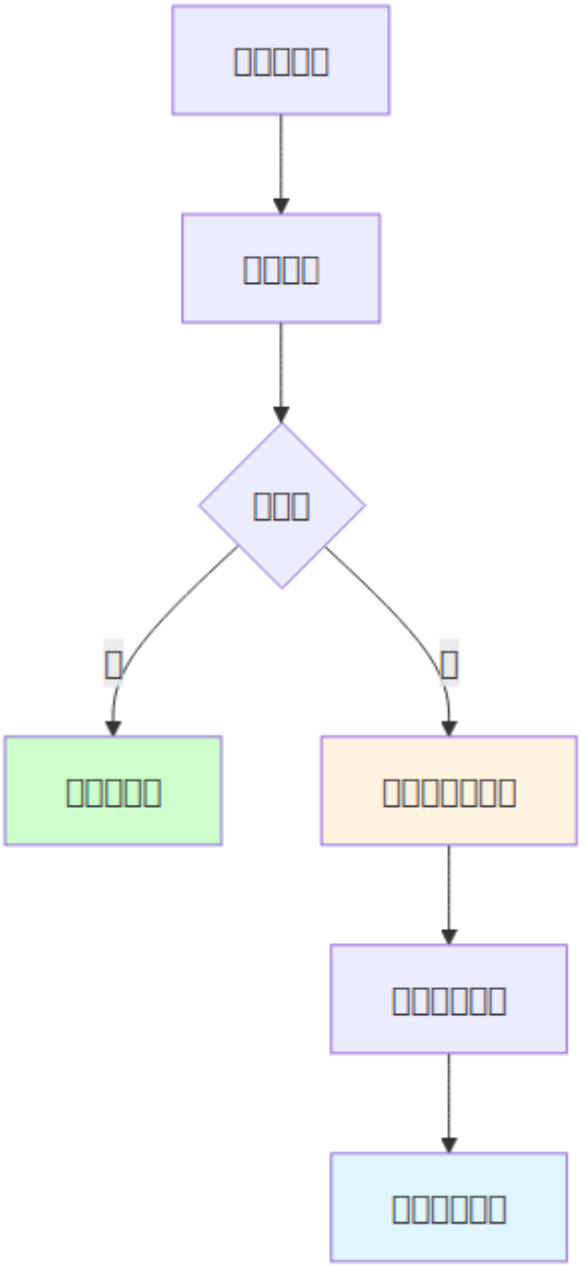

**API □□□**

```
curl -X POST https://your-domain.com/api/payments/invoice \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 10.00,
    "metadata": {
      "addon_id": 456
    }
  }'
```

**API □□□**

```
{
  "success": true,
  "message": "□□□□□□□□",
  "data": {
    "customer_id": 123,
    "service_amount": 10.00,
    "routing_mode": "hybrid",
    "initial_balance": 1.00,
    "wallet_portion_used": 1.00,     // □□□□□ $1
    "card_portion_used": 9.00,       // □□□ $9 □□
    "charged_amount": 9.00,          // ← □□□
    "wallet_credited": 9.00,         // ← □□□□
    "wallet_debited": 10.00,         // ← □□□□
    "final_balance": 0.00
  }
}
```

**□□ 2□$50 □□□□ + $30 □□**

□□□□□□□□□□ $50□□□□□□ $30□

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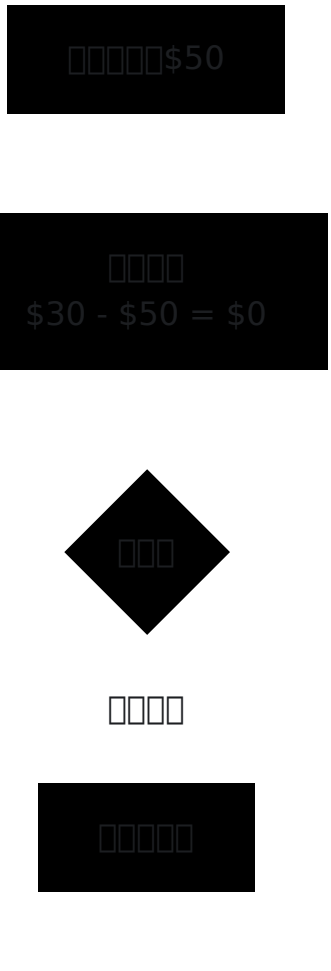


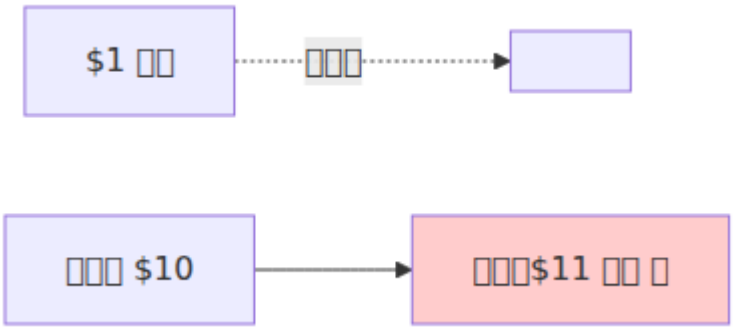

**API □□□**

```
{
  "success": true,
  "data": {
    "service_amount": 30.00,
    "initial_balance": 50.00,
    "charged_amount": 0,              // ← □□□□
    "wallet_debited": 30.00,
    "final_balance": 20.00,
    "payment_method_used": false      // ← □□□□
  }
}
```

□□ 3□□□□□□□□□□□□

□□□□□□□□ $500 □□□□□□□□□ $150□

□ 1 □□□□□□`POST /api/payments/authorize/hold`□□




**API □□□**

```
{
  "authorization_id": 301,
  "amount": 500.00,
  "status": "authorized",
  "wallet_balance": 150.00,
  "wallet_to_use": 150.00,              // □□□□□□□□□
  "card_amount": 350.00,                 // □□□□□□□□
  "message": "□□□□□ $350□□□□□□□□□□□□□□□□ $500 □□□□□□□"
}
```

□ 2 □□□□□□`POST /api/payments/capture/301`□□













□□□□□$0
□□□□□$350

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- □ □□□□□ $500 □ $350 □□“□□”□□□□ $500
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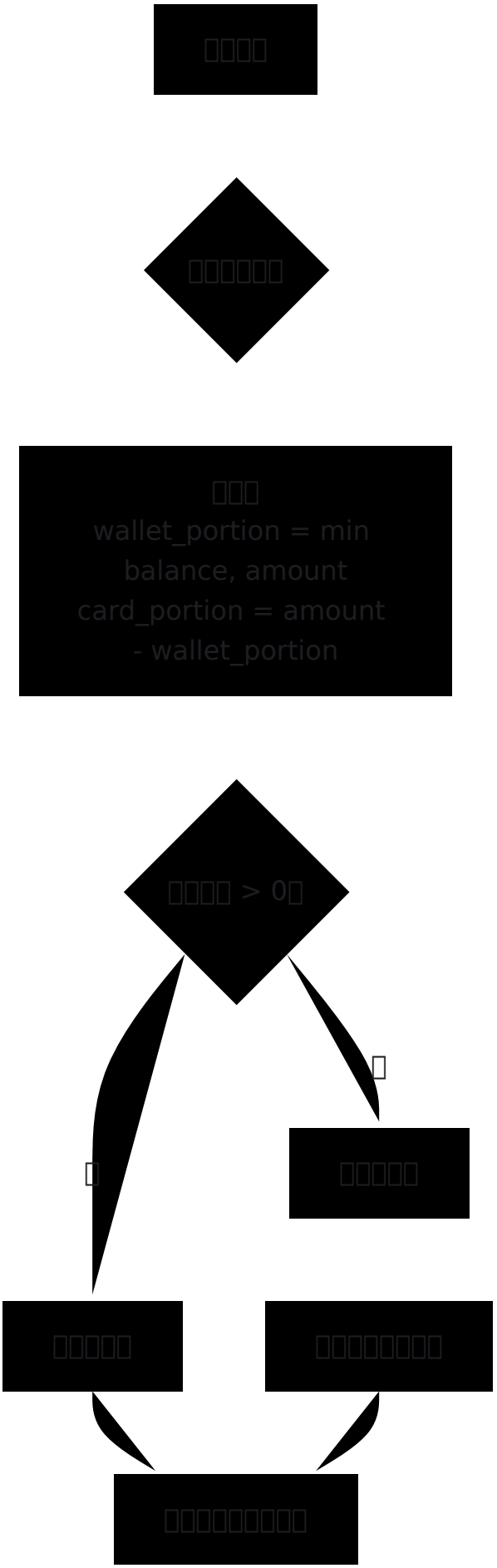
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□□□
wallet_portion = min
balance, amount
card_portion = amount
- wallet_portion
□□□□ > 0□
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2. □□□□□□`amount - wallet_balance`
3. □□□□ > 0□□□□□□□□□□
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```
curl -X POST https://your-domain.com/api/payments/charge \
  -H "Content-Type: application/json" \
  -H "Authorization: Bearer YOUR_API_KEY" \
  -d '{
    "customer_id": 123,
    "amount": 100.00,
    "metadata": {
      "routing_mode": "bypass"
    }
  }'
```

□□□□□□ $100□□□□□ $100□□□□□ $100□□□$0□

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---

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7. □□□□□□□□□□□□□□ 7 □□
8. □□□□□□□□□□□□□□□

## Playbook □□□□□□

□ Ansible playbooks □□□□□□□□□□

1. □□□□□□/□□□□□ - □□□□□□□ try/catch □□□□□□□□□
2. □□ **authorization_id** - □□□□□□□/□□□□□
3. □□ **API** □□ - □□□□□□□□□□
4. □□□□□□□□ - □□□□□ 2 □□□
5. □□□□□□□ - □□□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□ Playbook □□□□□

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# □□□□

□□ API □□□□□□□□ API □□□□□□□□□□□□□□ `Authorization` □□□

```
Authorization: Bearer YOUR_API_KEY
```

□□□□□□□□□□□□□□□ API □□□

---

# □□□□□

## □□□□□

- **Stripe** - □□□□□□□□ACH□
- **PayPal** - □□□□□PayPal □□□□□□□□□□ SDK □□□

## □□□□□□

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- □ **Playbooks** □□□□□□□□ - Ansible playbook □□
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- □□ **Stripe/PayPal**□ → □□□ □□□□□

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- □□□□□ → □□□ Playbook □□

---

# □□□□

> □ **API** □□□□□□□□□□ API □□□□□□□□□□ □□□□ **API** □□

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# □□□□□□□

OmniCRM □□□□ Jinja2 □□□ HTML □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

## □□□□□□

□□□□□□□□ `OmniCRM-API/invoice_templates/`

### ���□□□

- `sample_invoice_template.html` - □□□□□□
- `cifi_invoice_template.html` - □□□□□□

### □□□

□□□□□□□□ `OmniCRM-API/crm_config.yaml` □□□□

```
invoice:
  template_filename: 'sample_invoice_template.html'
```

## □□□□□□

□□□□□□□□□□ Jinja2 □□□

□□□□□

- `{{ invoice_number }}` - □□□□ ID□□□□`INV-2025-001234`□
- `{{ date }}` - □□□□□□□ISO □□□`2025-01-10T12:00:00`□
- `{{ due_date }}` - □□□□□□□□□`2025-02-10`□
- `{{ start_date }}` - □□□□□□□□
- `{{ end_date }}` - □□□□□□□□
- `{{ total_amount }}` - □□□□□□□□□□
- `{{ total_tax }}` - □□□□□□□□□□□□□□□

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- `{{ client.name }}` - □□□□□□□□□□
- `{{ client.address.address_line_1 }}` - □□□ 1
- `{{ client.address.address_line_2 }}` - □□□ 2
- `{{ client.address.city }}` - □□
- `{{ client.address.state }}` - □/□
- `{{ client.address.zip_code }}` - □□□□
- `{{ client.address.country }}` - □□

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```
{% for sub_transaction in transactions %}
    <tr>
        <td>{{ sub_transaction.transaction_id }}</td>
        <td>{{ sub_transaction.created.split("T")[0] }}</td>
        <td>{{ sub_transaction.title }}</td>
        <td>{{ sub_transaction.description }}</td>
        <td>${{ "%.2f"|format(sub_transaction.retail_cost) }}</td>
    </tr>
{% endfor %}
```

□□□□□

- `sub_transaction.transaction_id` - □□ ID

- `sub_transaction.created` - □□□□/□□
- `sub_transaction.title` - □□□□
- `sub_transaction.description` - □□□□
- `sub_transaction.retail_cost` - □□□□□
- `sub_transaction.tax_percentage` - □□□□□□□□□□10 □□ 10%□
- `sub_transaction.tax_amount` - □□□□□□□□□

□□□□□□□□□

```
<td>
    {% if sub_transaction.tax_amount and
sub_transaction.tax_amount > 0 %}
        ${{ "%.2f"|format(sub_transaction.tax_amount) }} ({{
sub_transaction.tax_percentage }}%)
    {% else %}
        -
    {% endif %}
</td>
```

# □□□□□□□□□□

□□ **1**□□□□□□□□

```
cd OmniCRM-API/invoice_templates/
cp sample_invoice_template.html your_company_invoice_template.html
```

□□ **2**□□□□ **HTML/CSS**

□□ `your_company_invoice_template.html` □□□□□□□□□

□□□□□□□□□

1. □□□□□□□□

```
<!-- □□□□□□□□ URL -->
![□□□□](https://yourcompany.com/logo.png)

<!-- □□□□□□□ -->
<h1>□□□□□□□</h1>
```

2. □□□□

```
<style>
    /* □□□□□□□ */
    .navbar {
        background: linear-gradient(to bottom right, #your-
color-1, #your-color-2);
    }

    /* □□ */
    .table thead th {
        background-color: #your-brand-color !important;
        color: white !important;
    }

    /* □□□□□ */
    .btn-primary {
        background-color: #your-brand-color;
    }
</style>
```

3. □□□□□□□

```
<footer>
    <p>□□□□□□□</p>
    <p>123 □□□□□□□□□□</p>
    <p>□□□+1-555-123-4567 | □□□□□billing@yourcompany.com</p>
    <p>ABN/□□□12345678900</p>
</footer>
```

4. □□□□

```
<div class="payment-info">
    <h3>□□□□</h3>
    <p><strong>□□□</strong> □ https://yourcompany.com/pay □□
</p>
    <p><strong>□□□□□</strong></p>
    <ul>
        <li>□□□□□□□□□□□□□□□□</li>
        <li>BSB□123-456</li>
        <li>□□□□□987654321</li>
        <li>□□□{{ invoice_number }}</li>
    </ul>
</div>
```

5. □□□□□

```
<div class="terms">
    <h4>□□□□</h4>
    <p>□□□□□ 30 □□□□□</p>
    <p>□□□□□□□□□□□□ 2%□</p>
    <p>□□□□□□□billing@yourcompany.com</p>
</div>
```

**□□ 3□□□□□**

□□ `OmniCRM-API/crm_config.yaml`□

```
invoice:
  template_filename: 'your_company_invoice_template.html'
```

**□□ 4□□□ API**

```
cd OmniCRM-API
sudo systemctl restart omnicrm-api
```

**□□ 5□□□□□□□**

1. □□□□□□□□□
2. □□□□□□

3. □□ PDF □□□□□
4. □□□□□□□□□□□□□□□□□□□□□□□□□□□□

# □□□□□

□□□□□

□□ Jinja2 □□□□/□□□□□

```
{% if total_amount > 1000 %}
    <div class="high-value-notice">
        <p><strong>□□□</strong> □□□□ - □□□□□□□□□□□□□</p>
    </div>
{% endif %}

{% if client.address.country == "Australia" %}
    <p>□□□ GST□${{ "%.2f"|format(total_amount * 0.10) }}</p>
{% endif %}
```

□□□□□□

□□□□□□□□□□

```
invoice_template_en.html
invoice_template_es.html
invoice_template_fr.html
```

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□□□□□□

```
<!-- □□□□□□□□□□ -->
<tr>
    <td colspan="4" class="text-right"><strong>□□□</strong></td>
    <td>${{ "%.2f"|format(total_amount) }}</td>
</tr>
<tr>
    <td colspan="4" class="text-right"><strong>□□</strong></td>
    <td>${{ "%.2f"|format(total_tax) }}</td>
</tr>
<tr>
    <td colspan="4" class="text-right"><strong>□□□</strong></td>
    <td>${{ "%.2f"|format(total_amount + total_tax) }}</td>
</tr>
```

□□□ `total_tax` □□□□□□□□□□□□□□□ `tax_amount` □□□□□□□□□□□□□□□□□□□□□□□□ `tax_percentage` □□□□□□□□□□□□□□□□□□□□□□□□ `tax_percentage` □ 0%□

□□□□□□□□

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```
<div class="qr-payment">
    ![□□□□](https://api.qrserver.com/v1/create-qr-code/?
size=150x150&data={{ payment_url }})
    <p>□□□□□□□□□□□</p>
</div>
```

# PDF □□□□□□

OmniCRM □□ **WeasyPrint** □ HTML □□□ PDF□□□□□□□□

□□□ **CSS**□

- □□□ CSS 2.1 □□
- □□□ CSS3□flexbox□□□□□□
- □□ `@font-face` □□□□□□

□□□□

- JavaScript
- CSS □□□□□□□□□□□
- □□□□
- □□□□ CSS □□

□□□□□□□□

```
@page {
    size: A4;
    margin: 1cm;
}

body {
    font-family: Arial, sans-serif;
    font-size: 10pt;
}
```

□□□□□□□

```
@media print {
    .no-print {
        display: none;
    }

    .page-break {
        page-break-after: always;
    }
}
```

□□□□□

```
.table {
    table-layout: fixed;
    width: 100%;
}

.table th, .table td {
    word-wrap: break-word;
    padding: 4px;
}
```

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```
@font-face {
    font-family: 'YourFont';
    src: url('https://yourcompany.com/fonts/yourfont.woff2')
format('woff2');
}

body {
    font-family: 'YourFont', Arial, sans-serif;
}
```

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```
curl -X GET "http://localhost:5000/crm/invoice/{invoice_id}/pdf" \
     -H "Authorization: Bearer YOUR_TOKEN" \
     --output test_invoice.pdf
```

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**API:** `DELETE /crm/transaction/transaction_id/{transaction_id}`□□□□ □□□□□□.md: □□□□□

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```
# □□ retail_cost □ $99.00□□□□□□ $79.00 □□□□□□□□
- name: □□□□□□□□□□□□□ retail_cost□
  set_fact:
    charge_amount: 79.00

- name: □□□□□□□
  uri:
    url: "http://localhost:5000/crm/payments/authorize/hold"
    method: POST
    body_format: json
    body:
      customer_id: "{{ customer_id | int }}"
      amount: "{{ charge_amount | float }}"  # □□□□□□□□□□□□
retail_cost
      # ...
```

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# □□□□□□□□□□□□
- name: □□□□□□□
  uri:
    url: "http://localhost:5000/crm/customer/{{ customer_id }}"
    # ...
  register: customer_info

- name: □□□□□□□
  set_fact:
    base_price: "{{ api_response_product.json.retail_cost | float
}}"
    discount_percent: >-
      {% if customer_info.json.tier == 'gold' %}20
      {% elif customer_info.json.tier == 'silver' %}10
      {% else %}0{% endif %}

- name: □□□□□□□□□□□□
  set_fact:
    final_price: "{{ (base_price | float) * (1 - (discount_percent
| float / 100)) | round(2) }}"
```

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```
# □□□□□□□□□ wholesale_cost □□□ retail_cost
- name: □□□□□□□□□□□
  set_fact:
    charge_amount: >-
      {% if customer_info.json.is_wholesale_partner %}
      {{ api_response_product.json.wholesale_cost | float }}
      {% else %}
      {{ api_response_product.json.retail_cost | float }}
      {% endif %}
```

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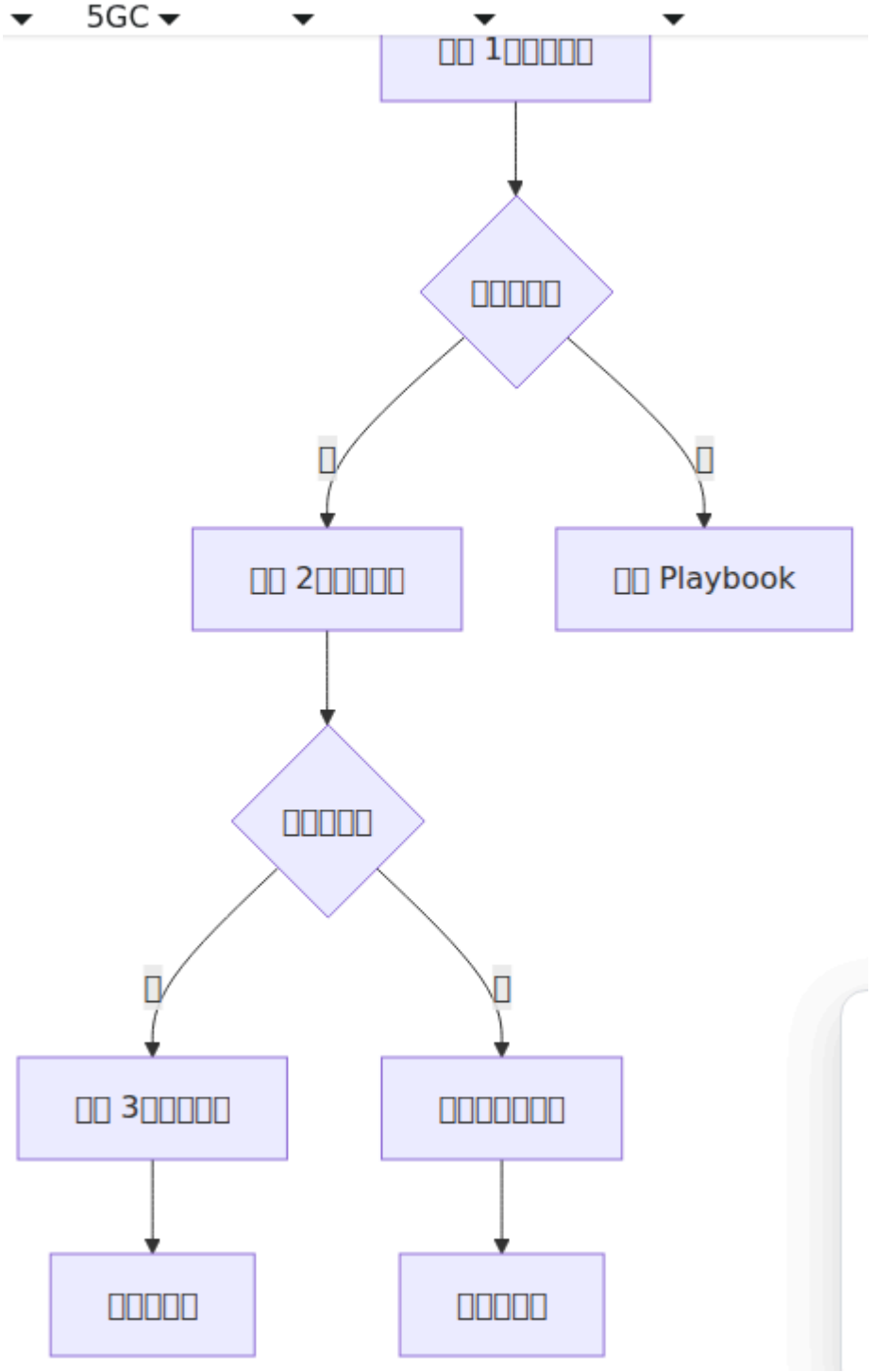


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□□□□□□ `play_topup_charge_then_action.yaml` □□□□□□□

```yaml
- name: Play Topup - □□□□□□□ Topup
  hosts: localhost
  gather_facts: no
  become: False

  tasks:
    - name: □□ crm_config □□□
      ansible.builtin.include_vars:
        file: "../../crm_config.yaml"
        name: crm_config

    # □□□□□□□□□□
    - name: □ CRM API □□□□□□□
      uri:
        url: "http://localhost:5000/crm/product/product_id//{{
product_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
        validate_certs: no
      register: api_response_product

    - name: □ CRM API □□□□□□□
      uri:
        url: "http://localhost:5000/crm/service/service_id/{{
service_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
        validate_certs: no
      register: api_response_service

    - name: □□□□□□□□□□
      set_fact:
        service_uuid: "{{ api_response_service.json.service_uuid
}}"
        customer_id: "{{ api_response_service.json.customer_id }}"
        package_name: "{{ api_response_product.json.product_name
}}"
        monthly_cost: "{{ api_response_product.json.retail_cost
}}"
```

```
        wholesale_cost: "{{
api_response_product.json.wholesale_cost }}"

    # □□□□□□□□□□□□
    - name: □□□□□□□□□□□□□□□□
      uri:
        url: "http://localhost:5000/crm/payments/methods?
customer_id={{ customer_id }}"
        method: GET
        headers:
          Authorization: "Bearer {{ access_token }}"
        return_content: yes
        validate_certs: no
      register: api_response_payment_methods

    - name: □□□□□□□□ payment_method_id
      set_fact:
        payment_method_id: "{{ api_response_payment_methods.json |
json_query(query) }}"
      vars:
        query: "data[?is_default==`true`].payment_method_id | [0]"

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    - name: "□□ 1□□□□□□□□□□□□"
      uri:
        url: "http://localhost:5000/crm/payments/authorize/hold"
        method: POST
        headers:
          Content-Type: "application/json"
          Authorization: "Bearer {{ access_token }}"
        body_format: json
        body:
          {
            "customer_id": "{{ customer_id | int }}",
            "amount": "{{ monthly_cost | float }}",
            "currency": "{{ crm_config.currency | default('AUD')
}}",
            "payment_method_id": "{{ payment_method_id | int }}",
            "metadata": {
              "description": "{{ package_name }} on {{
api_response_service.json.service_name }}",
```

```
              "service_id": "{{
api_response_service.json.service_id | int }}",
              "site_id": "{{ api_response_service.json.site_id |
int }}",
              "product_id": "{{ product_id }}",
              "user_id": "{{ (initiating_user | int) if
(initiating_user is defined and initiating_user is not none) else
omit }}",
              "title": "{{ package_name }}",
              "wholesale_cost": "{{ wholesale_cost | float }}",
              "invoice": true,
              "contract_days": "{{ days | int }}",
              "send_email": true
            }
          }
        return_content: yes
      register: api_response_authorization

    - name: □□□□□□
      assert:
        that:
          - api_response_authorization.status == 200
          - api_response_authorization.json.success == true

    - name: □□ authorization_id □□□□/□□
      set_fact:
        authorization_id: "{{
api_response_authorization.json.data.authorization_id }}"

    # □□ 2□OCS □□□□□□□□□□□□□□□□
    - block:
        - name: "□□ 2□□□ CGRateS □□"
          uri:
            url: "http://{{ crm_config.ocs.cgrates }}/jsonrpc"
            method: POST
            body_format: json
            headers:
              Content-Type: "application/json"
              Authorization: "Bearer {{ access_token }}"
            body:
              {
                "id": "{{ 999999999 | random }}",
                "method": "APIerSv1.ExecuteAction",
                "params": [{
```

```
                  "Tenant": "{{ crm_config.ocs.ocsTenant }}",
                  "Account": "{{ service_uuid }}",
                  "ActionsId": "{{ cgr_action_name }}"
                }]
              }
            status_code: 200
          register: action_execute_response

        - name: □□□□□□□□□
          assert:
            that:
              - action_execute_response.status == 200
              - action_execute_response.json.result == "OK"

        # □□ 3□□□□□ - □□□□□□□□□□
        - name: "□□ 3□□□□□□□"
          uri:
            url: "http://localhost:5000/crm/payments/capture/{{
authorization_id }}"
            method: POST
            headers:
              Content-Type: "application/json"
              Authorization: "Bearer {{ access_token }}"
            body_format: json
            body:
              {
                "metadata": {
                  "provisioning_status": "success",
                  "cgr_action": "{{ cgr_action_name }}"
                }
              }
            return_content: yes
          register: api_response_capture

        - name: □□□□□□
          assert:
            that:
              - api_response_capture.status == 200
              - api_response_capture.json.success == true

      rescue:
        # □□□□□□□□□□□□□□□□□
        - name: "□□□□□□□□□"
          uri:
```

```
            url: "http://localhost:5000/crm/payments/release/{{
authorization_id }}"
            method: POST
            headers:
              Content-Type: "application/json"
              Authorization: "Bearer {{ access_token }}"
            body_format: json
            body:
              {
                "metadata": {
                  "release_reason": "provisioning_failed",
                  "cgr_action": "{{ cgr_action_name }}"
                }
              }
            return_content: yes
          register: api_response_release

        - name: □□□□□□ playbook □□
          fail:
            msg: "OCS □□□□□□□□□ {{ authorization_id }} □□□□□□□□□□"
```

# □□ API □□

> □ □□□□□□□□□□

```
{
  "customer_id": 123,
  "amount": 49.99,
  "currency": "AUD",
  "payment_method_id": 456,
  "metadata": {
    "description": "□□□□□□□□",
    "service_id": 789,
    "site_id": 12,
    "product_id": "34",
    "user_id": 5,
    "title": "□□□□",
    "wholesale_cost": 25.00,
    "invoice": true,
    "contract_days": 30,
    "send_email": true
  }
}
```

□□□□□

- **customer_id**□□□□ - □□□□□□ ID
- **amount**□□□□ - □□□□□□□□□□
- **currency**□□□□ - □□□□□□□□□□□□□□□
- **payment_method_id**□□□□ - □□□□□□□□
- **metadata**□□□□ - □□□□□□□□□□
  - **description** - □□□□
  - **service_id** - □□□□□□
  - **site_id** - □□□□□□□□
  - **product_id** - □□□□□□
  - **user_id** - □□□□□□□□□□□
  - **title** - □□□□
  - **wholesale_cost** - □□□□□□□□□□□□
  - **invoice** - □□□ `true`□□□□□□□□□□
  - **contract_days** - □□□□
  - **send_email** - □□□ `true`□□□□□□□□□

□□□

```
{
  "success": true,
  "message": "□□□□□□□□□□□□□□□",
  "data": {
    "authorization_id": 301,
    "vendor_authorization_id": "auth_xxxxx",
    "amount": 500.00,
    "currency": "USD",
    "status": "authorized",
    "wallet_balance": 150.00,
    "wallet_to_use": 150.00,
    "card_amount": 350.00,
    "message": "□□□□□ $350□□□□□□□□□□□□□□□□□ $500 □□□□□□□"
  }
}
```

□□□

- □□ `authorization_id` □□□□□□□□□□□□□□□
- □□ `card_amount` □□□□□□□□□□
- □□□□□□□□□□□□□□□□□□□□

## 2. □□□□

□□□ `POST /crm/payments/capture/{authorization_id}`

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ `invoice: true`□□□□□□□□□□□

□□□□

```
{
  "metadata": {
    "provisioning_status": "success",
    "cgr_action": "Action_Topup_Standard",
    "additional_info": "□□□□□□□□□"
  }
}
```

□□□

```
{
  "success": true,
  "data": {
    "payment_id": "pay_xyz789",
    "transaction_id": 1234
  }
}
```

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1. □□□□□□□□□□□□□□□□□□□□
2. □□□□□□□□□□□□
3. □□□□□□□□□□□□
4. □□□□□□□□□□□□□□ `invoice: true`□
    - □□□□□□□□□□□□ = □□□
    - □□□□□□□□□□□□□□
    - □□□□□□□□□□□□ = □□□□□□□
    - □□□□□□□□□□□□□□□□□□□□□□□□
    - □□□□□□□□□□□□
5. □□□□□□□□□□□□
6. □□ `send_email: true`□□□□□□□□□□□□□□

□□□$500 □□□$150 □□□□□□

- □□□□□$350
- □□□□□□+$350□□□□□□□ $500□
- □□□□□□-$500□□□□□□□
- □□□□□□$0

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## 3. □□□□□□□

□□□ `POST /crm/payments/release/{authorization_id}`

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□□□□

```
{
  "metadata": {
    "release_reason": "provisioning_failed",
    "error_details": "OCS □□□□□□□"
  }
}
```

□□□

```
{
  "success": true,
  "message": "□□□□□□"
}
```

□□□□□□□

1. □□□□□□□□□□□□□□□□□
2. □□□□□□□□□□□□□□□□□
3. □□□□□□□□□□□□□□□□□□□
4. □□□□□□
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# □□□□□□

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## □□ API □□□□

□□□ `PUT /crm/transaction/`

□□ **`play_simple_service.yaml`** □□□□

```
- name: □□ API □□□□□□□□□
  uri:
    url: "http://localhost:5000/crm/transaction/"
    method: PUT
    headers:
      Content-Type: "application/json"
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "customer_id": {{ customer_id | int }},
        "service_id": {{ service_creation_response.json.service_id
| int }},
        "title": "{{ package_name }} - □□□□",
        "description": "□ {{ package_comment }} □□□□□",
        "invoice_id": null,
        "wholesale_cost": {{
api_response_product.json.wholesale_setup_cost | float }},
        "retail_cost": "{{
api_response_product.json.retail_setup_cost | float }}"
      }
    return_content: yes
  register: api_response_transaction

- name: □□□□□□□□□
  assert:
    that:
      - api_response_transaction.status == 200
```

□□□□□□

- **customer_id**□□□□ - □□ ID
- **service_id**□□□□ - □□□□□□□□□ ID
- **title**□□□□ - □□□□□
- **description**□□□□ - □□□□
- **invoice_id**□□□□ - □□□□□□□□□□ ID□□□□ null□
- **wholesale_cost**□□□□ - □□□□
- **retail_cost**□□□□ - □□□□□□□
- **site_id**□□□□ - □□□□□□□□ ID

- **tax_percentage**□□□□ - □□□□□

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- □□□□□□□□□□□□
- □□□□
- □□□□□□□□
- □□□□
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```
# □□□□□□□□□□□□□□□
# □□□□□□ 15 □□□□□□□□□□ 1 □□
# □□□□□□□□□□□□
```

```
- name: □□□□□□□□□□
  command: "date +%d"
  register: current_day

- name: □□□□□□□□□□□□
  command: "date -d 'last day of this month' +%d"
  register: days_in_month

- name: □□□□□□□□□□
  command: "date -d 'last day of this month' +%Y-%m-%d"
  register: last_day_of_month

- name: □□□□□□□□□
  set_fact:
    days_remaining: "{{ (days_in_month.stdout | int) -
(current_day.stdout | int) + 1 }}"

- name: □□□□□□□□
  set_fact:
    pro_rata_cost: "{{ ((monthly_cost | float) * (days_remaining |
float) / (days_in_month.stdout | float)) | round(2) }}"

- name: □□□□□□□
  debug:
    msg:
      - "□□□□□: ${{ monthly_cost }}"
      - "□□□□□: {{ days_in_month.stdout }}"
      - "□□□□□: {{ days_remaining }}"
      - "□□□□□□: ${{ pro_rata_cost }}"

# ���□□□□□□□□□□□□ pro_rata_cost
- name: "□□□□□□□□"
  uri:
    url: "http://localhost:5000/crm/payments/authorize/hold"
    method: POST
    headers:
      Content-Type: "application/json"
      Authorization: "Bearer {{ access_token }}"
    body_format: json
```

```
    body:
      {
        "customer_id": "{{ customer_id | int }}",
        "amount": "{{ pro_rata_cost | float }}",
        "currency": "{{ crm_config.currency | default('AUD') }}",
        "payment_method_id": "{{ payment_method_id | int }}",
        "metadata": {
          "title": "{{ package_name }} (□□□ {{ days_remaining }}
□)",
          "description": "□ {{ days_remaining }}/{{
days_in_month.stdout }} □□ {{ package_name }} □□□□□□□",
          "service_id": "{{ service_id | int }}",
          "invoice": true
        }
      }
```

## □□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```yaml
- name: □□□□□□□□□□□□□□□□
  set_fact:
    service_start_date: "2024-01-15"
    next_billing_date: "2024-02-01"

- name: □□□□□□□□□□
  shell: |
    echo $(( ( $(date -d "{{ next_billing_date }}" +%s) - $(date -
d "{{ service_start_date }}" +%s) ) / 86400 ))
  register: days_until_billing

- name: □□□□□□□□□□□□□□□□ 30□
  set_fact:
    billing_period_days: 30

- name: □□□□□□□□
  set_fact:
    pro_rata_cost: "{{ ((monthly_cost | float) *
(days_until_billing.stdout | float) / (billing_period_days |
float)) | round(2) }}"

- name: □□□□
  debug:
    msg:
      - "□□□□□: {{ service_start_date }}"
      - "□□□□□: {{ next_billing_date }}"
      - "□□□□□□□□: {{ days_until_billing.stdout }}"
      - "□□□□□□: ${{ pro_rata_cost }}"
```

# □□□□□□□□

□□ **1**□□□□□□

- □□□ 1 □ 15 □□□
- □□□□□□$60.00
- 1 □□□□□□31
- □□□□□□17□□□ 15 □□ 31 □□
- □□□□□□□`$60.00 × 17 ÷ 31 = $32.90`

□□ **2**□□□□□□

- □□□□□□□□□□ 10 □□□
- □□□□□□□ $30
- □□□□□□□ $50
- □□□□□□□□30
- □□□□□21
- □□□□□ $20
- □□□□□□□`$20.00 × 21 ÷ 30 = $14.00`

# □□□□

## 1. □□□□□/□□□□

□□□□□□□□□□□□□□/□□□□□□□□□□□□

```
- block:
    # □□□□
    - name: □□□□
      uri: ...

    # □□□□□□□□□□
    - name: □□□□
      uri: ...

  rescue:
    # □□□□□□□□□□□□
    - name: □□□□□□□
      uri: ...

    - name: □□ playbook
      fail:
        msg: "□□□□□□□□□□□□"
```

## 2. □□□□ API □□

□□□□□□□□□□□□

```
- name: □□□□
  uri: ...
  register: api_response_authorization

- name: □□□□□□
  assert:
    that:
      - api_response_authorization.status == 200
      - api_response_authorization.json.success == true
    fail_msg: "□□□□□□□{{ api_response_authorization.json }}"
```

## 3. □□□□ ID

□□□□ authorization_id □□□□□/□□□□□

```
- name: □□ authorization_id □□□□/□□
  set_fact:
    authorization_id: "{{
api_response_authorization.json.data.authorization_id }}"
```

## 4. □□□□□□□

□□□□□□□□□□□□□□□

```
metadata:
  description: "□□□□□□□□□□□"
  service_id: "{{ service_id | int }}"
  product_id: "{{ product_id }}"
  user_id: "{{ initiating_user | int }}"
  title: "□□□□□□□"
  wholesale_cost: "{{ wholesale_cost | float }}"
  invoice: true  # □□□□□□□□□□
  send_email: true  # □□□□□□
```

## 5. □□□□□□□

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```
- name: □□□□□□□□□□□□
  set_fact:
    final_cost: "{{ (base_cost | float * multiplier | float) |
round(2) }}"
```

## 6. □□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
- name: □□□□□□□□□
  set_fact:
    payment_method_id: "{{ api_response_payment_methods.json |
json_query(query) }}"
  vars:
    query: "data[?is_default==`true`].payment_method_id | [0]"

- name: □□□□□□□□□□□□
  assert:
    that:
      - payment_method_id is defined
      - payment_method_id != ""
      - payment_method_id != None
    fail_msg: "□□□□□□ {{ customer_id }} □□□□□□□□"
```

# □□□□

## □□ 1□□□□□□□□

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1. □□□□□□□□□□□
2. □□□□□
3. □ OCS/CGRateS □□□□□□
4. □ CRM □□□□□□□□
5. □□□□□
6. □□□□□□□□□□□□□

□□□ `play_topup_charge_then_action.yaml` □□□□□□□

## □□ 2□□□□□□□□□□

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4. □□□□□□□□□□□□□

□□□ `play_simple_service.yaml` □□ 202-232 □□□□□□□□

## □□ 3□□□□□/□□

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1. □□□□□□
2. □□ CGRateS □□
3. □□□□□□
4. □□□□□□□□□□

## □□ 4□□□ ActionPlan □□□□□□

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1. □□□□ `*http_post` □□□□□□□□□□
2. □□□□ `*monthly` □□□ ActionPlan
3. □ ActionPlan □□□□□
4. CGRateS □□□□□□□□□
5. □□ playbook □□□□□□

# □□□□

## □□□□

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- □□□□□□□□□□□
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- □□ ID □□□

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## □□□□□□□□□□

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- □□□□□□□□□□
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## □□□□□□□□□

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□□□ □□□□□□□□□□ `invoice: true`

□□□□□

- □□□□□□□□□ `invoice: true`□□□

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**1.** □□□□□□□□□ - □□□□□□□□□□/PayPal

```
- name: □□□□□□□□□□□
  uri:
    url: "http://localhost:5000/crm/payments/refund"
    method: POST
    headers:
      Content-Type: "application/json"
      Authorization: "Bearer {{ access_token }}"
    body_format: json
    body:
      {
        "transaction_id": "{{ vendor_transaction_id }}",
        "vendor": "stripe",
        "amount": "{{ refund_amount | float }}",
        "reason": "customer_request"
      }
```

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- □ PayPal□PayPal □□□□□

□□□□□□ playbooks □□□□□□□□□□□□□□□Square□Adyen□Braintree □□□

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- □□□□□ - Stripe/PayPal □□□ API □□

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## □□□ Playbook □□□

- `concepts_ansible.md` - □□□ playbook □□□□□
- `concepts_provisioning.md` - □□□□□□

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- `payments_transaction.md` - □□□□□□□□□
- `payments_process.md` - □□□□□□□
- `basics_payment.md` - □□□□□□□□□

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## OmniCRM□□□□□□□□□□

OmniCRM□□□□□□□□□□□□□□**RBAC**□□□□□□□□□□□□□□

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□□□□□□□□Web UI□API□□□□□□□□□□

## □□Web UI

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## □□API

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□□□ `POST /auth/users`

□□□□□□ `admin`

□□□□□

```
{
  "username": "john.smith",
  "email": "john.smith@company.com",
  "password": "TempP@ssw0rd!",
  "first_name": "John",
  "middle_name": "D",
  "last_name": "Smith",
  "phone_number": "+61412345678",
  "role": "Support"
}
```

□□□

```
{
  "id": 123,
  "username": "john.smith",
  "email": "john.smith@company.com",
  "first_name": "John",
  "last_name": "Smith",
  "roles": ["Support"],
  "created": "2025-01-04T10:30:00Z"
}
```

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`GET /auth/users/{user_id}`

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```
{
  "name": "Tier2_Support",
  "description": "Level 2 support team with elevated provisioning
access"
}
```

□□□

```
{
  "id": 45,
  "name": "Tier2_Support",
  "description": "Level 2 support team with elevated provisioning
access",
  "permissions": [],
  "users": []
}
```

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**□□Web UI□**

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**□□API□**

□□□ `POST /auth/roles/{role_id}/permissions`

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```
{
  "permission_id": 123
}
```

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```
{
  "permission_ids": [123, 124, 125]
}
```

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1. □□□□□

```
POST /auth/roles
{
  "name": "Provisioning_Specialist",
  "description": "Can provision services and manage customer
services"
}
```

2. □□□□□

```
POST /auth/roles/45/permissions
{
  "permission_ids": [
    1,   # view_customer
    20,  # view_customer_service
    21,  # create_customer_service
    22,  # update_customer_service
    30,  # view_provision
    31,  # create_provision
    40,  # view_inventory
    50,  # view_product
  ]
}
```

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### □□**Web UI**□

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### □□**API**□

□□□ `DELETE /auth/roles/{role_id}/permissions/{permission_id}`

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```
DELETE /auth/roles/45/permissions/31
```

□□□□□□□□□`create_provision`□□□

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### □□**Web UI**□

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4. □□**“□□”**

**□□API□**

□□□ `PUT /auth/roles/{role_id}`

```
{
  "name": "Senior_Support",
  "description": "Senior support team with full customer access"
}
```

## □□□□

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**□□API□**

`DELETE /auth/roles/{role_id}`

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**□□Web UI□**

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**□□API□**

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□□□ `PUT /auth/users/{user_id}`

```
{
  "role": "Support,Finance"
}
```

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□□□ `POST /auth/roles/{role_id}/users/{user_id}`

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`GET /auth/roles/{role_id}/users`

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`GET /auth/users/{user_id}`

□□□□`roles`□□□□□□□□□□□□□□

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OmniCRM□□□□□□□□□□□□□□□□□□□□□□□□□□□□

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**API□□□**

1. □□□□□

□□□ `POST /auth/forgot_password`

```
{
  "email": "user@example.com"
}
```

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2. □□□□□□□□

□□□ `POST /auth/reset_password`

```
{
  "token": "abc123...",
  "new_password": "NewSecureP@ssw0rd!"
}
```

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```
{
  "new_password": "TempP@ssw0rd!",
  "force_change": true
}
```

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- `new_password` - □□□□□□□□□
- `force_change`□□□□ - □□□true□□□□□□□□□□□□□□□□

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□□□ `POST /auth/change_password`

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```
{
  "current_password": "OldP@ssw0rd!",
  "new_password": "NewSecureP@ssw0rd!"
}
```

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# □□□□□□□□□□□□2FA□

OmniCRM□□□□TOTP□□□□□□□□□□□

## □□API□

1. **□□TOTP□□□**

   □□□ `POST /2fa/enable/user/{user_id}`

   □□□

```
{
  "totp_secret": "JBSWY3DPEHPK3PXP",
  "qr_code_url": "otpauth://totp/OmniCRM:user@example.com?
secret=JBSWY3DPEHPK3PXP&issuer=OmniCRM",
  "backup_codes": [
    "12345678",
    "23456789",
    "34567890",
    ...
  ]
}
```

2. □□□□□

   □□□ `POST /2fa/verify-setup/user/{user_id}`

   ```
   {
     "code": "123456"
   }
   ```

   □□□□□`{"verified": true}`□

## 2FA□□□□

□□□□2FA□□□□□□□□□□□□

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# □□2FA□□

□□□ `POST /2fa/verify/user/{user_id}`

```
{
  "code": "123456"
}
```

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- **TOTP**□□□□□□□□□□□□□□□□□6□□□□
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**□□Web UI□**

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**□□API□**

□□□ `POST /2fa/backup-codes/regenerate/user/{user_id}`

□□□

```
{
  "backup_codes": [
    "98765432",
    "87654321",
    "76543210",
    ...
  ]
}
```

# □□□2FA□□

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□□**API**□

□□□ `POST /2fa/admin/disable/user/{user_id}`

□□□□□ `admin`

□□□□□□□□□2FA□

- □□TOTP□□
- □□□□□□□
- □`is_2fa_enabled`□□□□□false

□□□□□□□□2FA□□□□□□□□□□□□□

## □□□□2FA□□□□□□□

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□□□ `POST /2fa/reset-for-new-device/user/{user_id}`

```
{
  "backup_code": "12345678"
}
```

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- □□**2FA**□□□□ - □□□□□□□□□□2FA

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**□□Web UI□**

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**□□API□**

□□□ `PUT /auth/users/{user_id}`

```
{
  "first_name": "Jane",
  "last_name": "Doe-Smith",
  "email": "jane.doesmith@newcompany.com",
  "phone_number": "+61498765432",
  "role": "Support,Finance"
}
```

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- `pending_email`□□□□□□□□□
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- `email`□□□□□□□□
- `email_verified`□□□□□true

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□□□ `PUT /auth/users/{user_id}`

```
{
  "deleted": false
}
```

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- *view_**: □□/□□
- *create_**: □□/□□
- *update_**: □□/□□

- *delete_*: □□/□□

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- `admin`: □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
- `can_impersonate`: □□□□□□□□□□□□□□□□□□□□□□□/□□□□□□□
- `grafana_access`: □□Grafana□□□□□□□□□□□□□□□□□□□

    - *view_customer_contact、create_customer_contact、update_customer_contact、delete_customer_contact*
    - □□□□□ *view own customer contact*
- □□□□□□□□□□□□
    - *view_customer_attribute、create_customer_attribute、update_customer_attribute、delete_customer_attribute*
    - □□□□□ *view own customer attribute*
- □□□□□□□□□□□□
    - *view_customer_tag、create_customer_tag、update_customer_tag、delete_customer_tag*
    - □□□□□ *view own customer tag*
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    - *view_customer_service、create_customer_service、update_customer_service、delete_customer_service*
    - □□□□□ *view own customer service*
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    - *view_customer_activity、create_customer_activity、update_customer_activity、delete_customer_activity*
    - □□□□□ *view own customer activity*

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- **Stripe□**
    - `view_customer_stripe_card`、`create_customer_stripe_card`、`update_customer_stripe_card`、`delete_customer_stripe_card`
    - □□□□□ *view own customer stripe card*
- □□
    - `view_customer_transaction`、`create_customer_transaction`、`update_customer_transaction`、`delete_customer_transaction`
    - □□□□□ *view own customer transaction*
- □□
    - `view_customer_invoice`、`create_customer_invoice`、`update_customer_invoice`、`delete_customer_invoice`
    - □□□□□ *view own customer invoice*

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- *view_communication*、*create_communication*、*update_communication*、*delete_communication*
- □□□□□ *view own communication*

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  - `view_inventory`、`create_inventory`、`update_inventory`、`delete_inventory`
  - □□□□□ *view own inventory*
- □□□□
  - `view_inventory_template`、`create_inventory_template`、`update_inventory_template`、`delete_inventory_template`
  - □□□□□ *view own inventory template*

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- `view_product`、`create_product`、`update_product`、`delete_product`

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- `view_cbc_message`、`create_cbc_message`、`update_cbc_message`、`delete_cbc_message`

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  - `view_provision`、`create_provision`、`update_provision`、`delete_provision`
  - □□□□□ *view own provision*
- □□□□
  - `view_provision_event`、`create_provision_event`、`update_provision_event`、`delete_provision_event`

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□□□ `GET /auth/permissions`

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□□□ `POST /auth/permissions`

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```
{
    "name": "view_example",
    "description": "Read-only access to example objects"
}
```

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□□□ `GET /auth/roles`

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□□□ `POST /auth/roles`

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```
{
"name": "Support",
"description": "Tier-1 support team"
}
```

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□□□ `POST /auth/roles/{role_id}/permissions`

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```
{
  "permission_id": 123
}
```

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□□□ `DELETE /auth/roles/{role_id}/permissions/{permission_id}`

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□□□ `POST /auth/users`

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```
{
  "username": "sara",
  "email": "sara@example.com",
  "password": "TempP@ssw0rd!",
  "first_name": "Sara",
  "last_name": "Ng",
  "phone_number": "+61...",
  "role": "Support"
}
```

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□□□ `PUT /auth/users/{user_id}`

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```
{
  "role": "Finance"
}
```

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□□□ `GET /auth/users`

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- □□□ `can_impersonate`□`admin`

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□□□ `POST /auth/impersonate`

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```
{ "user_id": 42 }
```

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□□□ `POST /auth/stop_impersonation`

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## □□Grafana

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POST /crm/faq/
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{
  "question": "□□□□□□□□□□□□",
  "answer": "□□□□□□□□□\n1. □□□□□□□\n2. □□“□□□□”\n3. □□□□□□□□□\n4. □□□□□□□□□□□□□□\n5. □□□□□□□□□□□",
  "category": "□□",
  "tags": "□□,□□,□□,□□",
  "is_visible_to_customer": true
}
```

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{
  "faq_id": 42,
  "question": "□□□□□□□□□□□□",
  "answer": "□□□□□□□□□\n1. □□□□□□□...",
  "category": "□□",
  "tags": "□□,□□,□□,□□",
  "is_visible_to_customer": true,
  "view_count": 0,
  "helpful_count": 0,
  "not_helpful_count": 0,
  "created": "2026-01-07T10:00:00Z",
  "last_modified": "2026-01-07T10:00:00Z",
  "created_by_user": {
    "id": 1,
    "username": "admin",
    "first_name": "Admin",
    "last_name": "User"
  }
}
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**API □□□**

```
GET /crm/faq/popular?limit=10
GET /crm/faq/helpful?limit=10
```

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```
[□□□□](https://example.com)
[□□□□□□](mailto:support@example.com)
```

## □□□

````
```bash
command --with-flags
```

```json
{
  "example": "data"
}
```
````

## □□

```
![□□□□](https://example.com/image.png)
```

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# API □□

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```
GET /crm/faq/
```

□□□□□ `view_faq`

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- `page`□□□□□□□1□
- `per_page`□□□□□□□□□□□20□
- `sort`□□□□□□created, view_count, helpful_count□
- `order`□□□□□□asc, desc□
- `search`□□□□□
- `category`□□□□□□
- `tags`□□□□□□□□□□□□□
- `is_visible_to_customer`□□□□□□□□true/false□

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```
GET /crm/faq/customer
```

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```
GET /crm/faq/faq_id/{faq_id}
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```
GET /crm/faq/customer/faq_id/{faq_id}
```

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## □□□□□□

```
PATCH /crm/faq/faq_id/{faq_id}
```

□□□□□ `update_faq`

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```
DELETE /crm/faq/faq_id/{faq_id}
```

□□□□□ `delete_faq`

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```
POST /crm/faq/faq_id/{faq_id}/visibility
```

□□□□□ `manage_faq_visibility`

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```
{
  "is_visible_to_customer": true
}
```

## □□□□□□□□□

```
POST /crm/faq/faq_id/{faq_id}/helpful
```

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```
{
  "is_helpful": true
}
```

## □□□□□□□□

```
GET /crm/faq/popular?limit=10
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{
  "title": "□□□□□□□□□",
  "description": "□□□□□□□□□□□□□□□□□□□□",
  "customer_id": 290,
  "service_id": 167,
  "priority": "High",
  "status": "Open",
  "tags": "technical,voicemail"
}
```

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# API □□

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```
POST /crm/ticket/
```

□□□□□ `create_ticket`

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```
GET /crm/ticket/ticket_id/{ticket_id}
```

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```
PATCH /crm/ticket/ticket_id/{ticket_id}
```

□□□□□ `update_ticket`

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```
DELETE /crm/ticket/ticket_id/{ticket_id}
```

□□□□□ `delete_ticket`

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```
POST /crm/ticket/ticket_id/{ticket_id}/updates
```

## □□□□

```
POST /crm/ticket/ticket_id/{ticket_id}/attachments
```

□□□□□□ `upload_attachment`

## □□□□

```
POST /crm/ticket/ticket_id/{ticket_id}/subscribe
```

□□□□□□ `subscribe_ticket`

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