

TECHNICAL SPECIFICATION

HouseCall Pro MCP Server

Model Context Protocol Integration for Claude Desktop

Version 1.0
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Prepared for: KIAPN (Koala Insulation of Atlanta North)
Classification: Internal Use

1. Document Control

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1.1 Revision History

Version	Date	Author	Changes
1.0	2026-01-12	Claude	Initial specification

2. Executive Summary

2.1 Purpose

This specification defines the technical requirements for building a Model Context Protocol (MCP) server that integrates HouseCall Pro CRM data with Claude Desktop. The integration enables real-time access to sales pipeline, job profitability, and operational metrics for EOS (Entrepreneurial Operating System) L10 meetings and business operations.

2.2 Business Context

KIAPN is a residential insulation retrofit franchise implementing EOS methodology. Current workflow requires manual PDF exports from HouseCall Pro to review business metrics. This integration eliminates manual data extraction by providing Claude with direct API access to CRM data.

2.3 Success Criteria

- Claude can query HouseCall Pro data without manual exports
- L10 Scorecard metrics available in single tool call
- Close rate, pipeline value, and revenue calculated automatically
- Integration runs locally on owner's machine (no cloud hosting required)

3. System Architecture

3.1 Architecture Overview

The system consists of three components communicating via standardized protocols:

Component	Technology	Function
Claude Desktop	Electron App	User interface, MCP client
MCP Server	Python + FastMCP	Protocol translation, business logic
HouseCall Pro API	REST API	CRM data source

3.2 Data Flow

```
User Query → Claude Desktop → MCP Server → HouseCall Pro API → MCP  
Server → Claude Desktop → Response
```

3.3 Communication Protocols

Interface	Protocol	Authentication
Claude ↔ MCP Server	stdio (JSON-RPC)	None (local process)
MCP Server ↔ HCP API	HTTPS REST	Bearer Token

4. HouseCall Pro API Specification

4.1 Authentication

Parameter	Value
Base URL	https://api.housecallpro.com/v1
Auth Type	Bearer Token
Header	Authorization: Bearer {API_KEY}
API Key	a]2d48531bbf4e11aaec0b496b03b1ae
Plan Required	MAX

4.2 Available Endpoints

Endpoint	Method	Purpose	Key Parameters
/customers	GET	List customers	q, page, page_size
/customers/{id}	GET	Single customer	customer_id
/estimates	GET	List estimates	status, scheduled_start_min/max
/estimates/{id}	GET	Single estimate	estimate_id
/jobs	GET	List jobs	work_status, completed_at_min/max
/jobs/{id}	GET	Single job	job_id
/employees	GET	List employees	page, page_size
/invoices	GET	List invoices	status, created_at_min/max

4.3 Status Values

4.3.1 Estimate Status

pending | won | lost | expired

4.3.2 Job Work Status

scheduled | in_progress | complete | canceled

4.3.3 Invoice Status

draft | sent | paid | partial | void

5. MCP Tool Specifications

5.1 Core Data Tools

5.1.1 get_customers

Parameter	Type	Description
page	int	Page number (default: 1)
page_size	int	Results per page (default: 20, max: 200)
q	string?	Search query for name, email, phone

5.1.2 get_estimates

Parameter	Type	Description
page	int	Page number (default: 1)
page_size	int	Results per page (default: 50, max: 200)
status	string?	Filter: pending won lost expired
scheduled_start_min	ISO datetime?	Estimates scheduled after this time
scheduled_start_max	ISO datetime?	Estimates scheduled before this time
created_at_min	ISO datetime?	Estimates created after this time
created_at_max	ISO datetime?	Estimates created before this time

5.1.3 get_jobs

Parameter	Type	Description
page	int	Page number (default: 1)
page_size	int	Results per page (default: 50, max: 200)
work_status	string?	Filter: scheduled in_progress complete canceled
scheduled_start_min	ISO datetime?	Jobs scheduled after this time
scheduled_start_max	ISO datetime?	Jobs scheduled before this time
completed_at_min	ISO datetime?	Jobs completed after this time
completed_at_max	ISO datetime?	Jobs completed before this time

5.2 Compound Reporting Tools

5.2.1 get_weekly_revenue

Returns revenue from completed jobs for a specified week.

Parameter	Type	Description
weeks_back	int	0 = current week, 1 = last week, etc.

Returns: { week_start, week_end, total_revenue, job_count, jobs[] }

5.2.2 get_pipeline_value

Returns total value of all pending estimates.

Parameters: None

Returns: { total_pipeline_value, estimate_count, estimates[] }

5.2.3 get_close_rate

Calculates win rate for a specified period.

Parameter	Type	Description
days_back	int	Number of days to analyze (default: 30)

Returns: { close_rate_percent, won_count, lost_count, won_value, lost_value }

5.2.4 get_scheduled_jobs

Returns jobs scheduled for upcoming period.

Parameter	Type	Description
days_forward	int	Number of days ahead (default: 14)

Returns: { total_scheduled_value, job_count, jobs[] }

5.2.5 get_scorecard_metrics

Returns all key EOS Scorecard metrics in a single call. This is the primary tool for L10 meeting preparation.

Parameters: None

Returns:

Field	Description
this_week_revenue	Completed job revenue (current week)
this_week_jobs	Count of completed jobs (current week)
last_week_revenue	Completed job revenue (previous week)
last_week_jobs	Count of completed jobs (previous week)
pipeline_value	Total value of pending estimates
pipeline_count	Count of pending estimates

Field	Description
close_rate_30d	Win rate percentage (last 30 days)
won_30d	Count of won estimates (last 30 days)
lost_30d	Count of lost estimates (last 30 days)
scheduled_value_14d	Value of jobs scheduled (next 14 days)
scheduled_jobs_14d	Count of scheduled jobs (next 14 days)

6. Implementation Requirements

6.1 Technology Stack

Component	Technology	Version
Runtime	Python	3.10+
MCP Framework	FastMCP	≥1.0.0
HTTP Client	httpx	≥0.27.0
Package Manager	pip	Latest

6.2 File Structure

```
housecallpro-mcp/
├── server.py          # Main MCP server
├── requirements.txt    # Python dependencies
├── README.md           # Installation guide
└── venv/               # Virtual environment
```

6.3 Configuration

6.3.1 Environment Variable

```
HOUSECALLPRO_API_KEY=a]2d48531bbf4e11aaec0b496b03b1ae
```

6.3.2 Claude Desktop Configuration

Add to claudes_desktop_config.json:

```
{
  "mcpServers": {
    "housecallpro": {
      "command": "/path/to/venv/bin/python",
      "args": ["/path/to/server.py"],
      "env": {
        "HOUSECALLPRO_API_KEY": "a]2d48531bbf4e11aaec0b496b03b1ae"
      }
    }
  }
}
```

7. Installation Procedure

7.1 Prerequisites

- Python 3.10 or higher installed
- Claude Desktop installed and configured
- HouseCall Pro MAX plan (API access required)
- Terminal/Command line access

7.2 Installation Steps

1. Create project directory:

```
mkdir ~/housecallpro-mcp && cd ~/housecallpro-mcp
```

2. Create server.py with content from Appendix A
3. Create requirements.txt with content from Appendix B
4. Create and activate virtual environment:

```
python3 -m venv venv  
source venv/bin/activate # macOS/Linux  
venv\Scripts\activate # Windows
```

5. Install dependencies:

```
pip install -r requirements.txt
```

6. Locate Claude Desktop config file:

```
macOS: ~/Library/Application Support/Claude/clause_desktop_config.json
```

```
Windows: %APPDATA%\Claude\claude_desktop_config.json
```

7. Add MCP server configuration (see Section 6.3.2)

8. Restart Claude Desktop

8. Testing & Validation

8.1 Unit Tests

Test ID	Test Case	Expected Result
T-001	API connection with valid key	HTTP 200, JSON response
T-002	API connection with invalid key	HTTP 401 Unauthorized
T-003	get_customers returns data	Array of customer objects
T-004	get_estimates with status filter	Only matching status returned
T-005	get_jobs with date range	Only jobs in range returned
T-006	get_scorecard_metrics	All 11 metrics populated

8.2 Integration Tests

1. In Claude Desktop, type: "Pull my scorecard metrics"
2. Verify all metrics are returned with realistic values
3. Type: "What is my close rate for the last 30 days?"
4. Verify percentage matches manual calculation from HCP

8.3 Acceptance Criteria

- All unit tests pass
- Scorecard metrics match HCP dashboard within 5% tolerance
- Response time < 5 seconds for compound tools
- No API rate limit errors during normal use

9. Security Considerations

9.1 API Key Protection

- API key stored in Claude Desktop config, not in source code
- Config file should have restricted permissions (600)
- Never commit API key to version control
- Rotate key if compromised

9.2 Data Access

The API key provides full read access to all HouseCall Pro data including: customer PII (names, addresses, phone numbers, email), financial data (job amounts, invoices, payments), and employee information. Treat with appropriate sensitivity.

9.3 Network Security

- All API calls use HTTPS (TLS 1.2+)
- MCP server runs locally (no network exposure)
- No data persisted to disk by MCP server

10. Troubleshooting

Symptom	Resolution
Tool not appearing in Claude	Check config path, restart Claude Desktop
401 Unauthorized	Verify API key, check HCP MAX plan status
Connection timeout	Check internet, verify api.housecallpro.com accessible
Empty results	Verify date ranges, check status filters
Rate limit (429)	Reduce query frequency, implement backoff
Python not found	Use full path to venv Python in config

Appendix A: server.py

Complete source code for the MCP server. Create this file as ~/housecallpro-mcp/server.py

[See attached file: server.py]

File is provided as a separate attachment to this specification.

Appendix B: requirements.txt

Python dependencies. Create this file as ~/housecallpro-mcp/requirements.txt

```
mcp>=1.0.0  
httpx>=0.27.0
```

Appendix C: Claude Desktop Config Template

Complete configuration example. Merge with existing config if present.

```
{  
  "mcpServers": {  
    "housecallpro": {  
      "command": "/Users/YOUR_USERNAME/housecallpro-  
mcp/venv/bin/python",  
      "args": ["/Users/YOUR_USERNAME/housecallpro-mcp/server.py"],  
      "env": {  
        "HOUSECALLPRO_API_KEY": "a]2d48531bbf4e11aaec0b496b03blaе"  
      }  
    }  
  }  
}
```

Replace YOUR_USERNAME with actual system username.

On macOS, config location: ~/Library/Application
Support/Claude/clause_desktop_config.json

On Windows, config location: %APPDATA%\Claude\claude_desktop_config.json

Appendix D: Quick Reference Commands

D.1 Natural Language Queries

User Says	Tool Called
"Pull my scorecard metrics"	get_scorecard_metrics()
"What's my close rate?"	get_close_rate(30)
"Show me the pipeline"	get_pipeline_value()
"Revenue this week"	get_weekly_revenue(0)
"Revenue last week"	get_weekly_revenue(1)
"What's scheduled next 2 weeks?"	get_scheduled_jobs(14)
"Find customer John Smith"	get_customers(q="John Smith")
"Show pending estimates"	get_estimates(status="pending")

D.2 EOS Scorecard Mapping

Scorecard Metric	Tool Field	Target
Weekly Revenue	this_week_revenue	\$25,000
Pipeline Value	pipeline_value	\$50,000+
Close Rate	close_rate_30d	38%+ (national avg)
Scheduled Revenue	scheduled_value_14d	\$40,000+