This document follows the **Log Result of Action (LROA)** schema defined by IG.

Task Context: * **User Request:** "Book a room at the Sunshine Inn Orlando for John Doe. Check-in Dec 1st, Check-out Dec 3rd."

Information Gathering Pipeline: Execution Logs

Phase 1: Discovery

Step 1: Search & Ranking

Context: The BI agent parses the intent and requests a search for the specific hotel to find the booking URL.

```json
{
  "id": "log-001",
  "tool_name": "SearchOrchestrator",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-001",
  "status": "success",
  "timestamp": "2025-11-25T10:00:01.000Z",
  "received_at": "2025-11-25T10:00:02.250Z",
  "confidence_score": 0.98,
  "message": "Target URL identified with high domain trust",
  "evidence": {
    "screenshot_path": null,
    "dom_snapshot": null,
    "notes": "Serper API call successful. 'Booking' keyword injection applied."
  },
  "output": {
    "data": {
      "original_query": "Sunshine Inn Orlando booking",
      "optimized_query": "Sunshine Inn Orlando official booking site availability",
      "ranked_results": [
        {
          "url": "https://www.sunshine-inn-orlando.com",
          "title": "Sunshine Inn Orlando - Official Site",
          "rank_score": 0.98
        }
      ]
    }
  },
  "metadata": {
    "execution_time_ms": 1250,
```

```
    "tool": "IG/Search"
  }
}
```

Phase 2: Page Analysis (Home Page)

Step 2: DOM Extraction (Raw Retrieval)

Context: The BI agent navigates to the URL found in Step 1. The DOM Extraction tool handles the browser retrieval and CAPTCHA checks.

```
{
  "id": "log-002",
  "tool_name": "DOMExtraction",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-002",
  "status": "success",
  "timestamp": "2025-11-25T10:00:05.100Z",
  "received_at": "2025-11-25T10:00:06.500Z",
  "confidence_score": 1.0,
  "message": "Page loaded successfully",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-002_home.png",
    "dom_snapshot": "evidence/task-001/trace-002_home.html",
    "notes": "BrightData proxy used. No CAPTCHA detected. Status 200 OK."
  },
  "output": {
    "data": {
      "url": "https://www.sunshine-inn-orlando.com",
      "content_length": 45020,
      "title": "Sunshine Inn - Home"
    }
  },
  "metadata": {
    "execution_time_ms": 3100,
    "memory_usage_mb": 45.2,
    "tool": "IG/Extraction"
  }
}
```

Step 3: DOM Understanding (Semantic Analysis)

Context: The BI agent needs to know where the "Book Now" button is. The DOM Understanding agent parses the raw HTML from Step 2.

```
{
  "id": "log-003",
  "tool_name": "DOMUnderstandingAgent",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-003",
  "status": "success",
  "timestamp": "2025-11-25T10:00:07.000Z",
  "received_at": "2025-11-25T10:00:08.200Z",
  "confidence_score": 0.96,
  "message": "Identified primary navigation elements",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-002_home.png",
    "dom_snapshot": null,
    "notes": "LLM analysis of interactive elements completed."
  },
  "output": {
    "data": {
      "interactive_elements": [
        {
          "element_id": "nav-book-btn",
          "tag": "a",
          "xpath": "/html/body/header/nav/div[2]/a[1]",
          "description": "Primary 'Book Now' button. Navigates to reservation flow.",
          "action_type": "click"
        }
      ]
    }
  },
  "metadata": {
    "execution_time_ms": 1200,
    "tool": "IG/Understanding"
  }
}
```

Phase 3: Navigation

Step 4: Action Execution (Click Navigation)

Context: The BI agent commands a click on the element identified in Step 3.

```
{
  "id": "log-004",
  "tool_name": "IdentifyClickButton",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-004",
```

```json
  "status": "success",
  "timestamp": "2025-11-25T10:00:09.500Z",
  "received_at": "2025-11-25T10:00:10.100Z",
  "confidence_score": 0.99,
  "message": "Click action performed successfully",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-004_click.png",
    "dom_snapshot": "evidence/task-001/trace-004_post_click.html",
    "notes": "Element was visible. URL changed to /reservations."
  },
  "output": {
    "data": {
      "action_type": "click",
      "target_selector": "/html/body/header/nav/div[2]/a[1]",
      "post_action_url": "https://www.sunshine-inn-orlando.com/reservations"
    }
  },
  "metadata": {
    "execution_time_ms": 600,
    "tool": "IG/ActionExecutor"
  }
}
```

Phase 4: Booking Form Interaction

Step 5: DOM Extraction (Reservation Page)

Context: Now on the reservation page, the system must extract the new DOM to find the form fields.

```json
{
  "id": "log-005",
  "tool_name": "DOMExtraction",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-005",
  "status": "success",
  "timestamp": "2025-11-25T10:00:12.000Z",
  "received_at": "2025-11-25T10:00:12.500Z",
  "confidence_score": 1.0,
  "message": "Reservation page DOM extracted",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-005_form.png",
    "dom_snapshot": "evidence/task-001/trace-005_form.html",
    "notes": "Form detected in viewport."
  },
```

```json
  "output": {
    "data": {
      "url": "https://www.sunshine-inn-orlando.com/reservations",
      "has_forms": true
    }
  },
  "metadata": {
    "execution_time_ms": 1500,
    "tool": "IG/Extraction"
  }
}
```

Step 6: DOM Understanding (Form Analysis)

Context: The BI agent asks: "Where do I type the name and dates?" The DOM Understanding tool maps the user's data to specific inputs.

```json
{
  "id": "log-006",
  "tool_name": "DOMUnderstandingAgent",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-006",
  "status": "success",
  "timestamp": "2025-11-25T10:00:13.500Z",
  "received_at": "2025-11-25T10:00:14.200Z",
  "confidence_score": 0.94,
  "message": "Form fields mapped to semantic roles",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-005_form.png",
    "dom_snapshot": null
  },
  "output": {
    "data": {
      "form_fields": [
        {
          "field_type": "text",
          "semantic_role": "guest_name",
          "xpath": "//*[@id='guestName']",
          "label": "Full Name"
        },
        {
          "field_type": "date",
          "semantic_role": "check_in_date",
          "xpath": "//*[@id='checkInDate']",
          "format_hint": "MM/DD/YYYY"
        },
```

```json
      {
        "field_type": "date",
        "semantic_role": "check_out_date",
        "xpath": "//*[@id='checkOutDate']",
        "format_hint": "MM/DD/YYYY"
      },
      {
        "field_type": "button",
        "semantic_role": "submit_search",
        "xpath": "//*[@id='search-rooms-btn']",
        "label": "Check Availability"
      }
    ]
  }
},
"metadata": {
  "execution_time_ms": 850,
  "tool": "IG/Understanding"
}
}
```

Step 7: Action Execution (Input Name)

Context: The BI agent commands the Input Text tool to fill the Name field.

```json
{
  "id": "log-007",
  "tool_name": "InputText",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-007",
  "status": "success",
  "timestamp": "2025-11-25T10:00:15.000Z",
  "received_at": "2025-11-25T10:00:15.300Z",
  "confidence_score": 1.0,
  "message": "Text input simulation complete",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-007_input_name.png",
    "dom_snapshot": "evidence/task-001/trace-007_input_name.html",
    "notes": "Field was cleared before typing. Value verified in DOM."
  },
  "output": {
    "data": {
      "action_type": "type",
      "target_selector": "//*[@id='guestName']",
      "input_value": "John Doe"
    }
```

```
    },
    "metadata": {
      "execution_time_ms": 200,
      "tool": "IG/ActionExecutor"
    }
  }
}
```

Step 8: Action Execution (Input Dates)

Context: The BI agent commands the Input Text tool to fill the Date fields (Action 1 of 2 for brevity).

```
{
  "id": "log-008",
  "tool_name": "InputText",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-008",
  "status": "success",
  "timestamp": "2025-11-25T10:00:15.500Z",
  "received_at": "2025-11-25T10:00:15.800Z",
  "confidence_score": 1.0,
  "message": "Date input simulation complete",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-008_input_date.png",
    "dom_snapshot": "evidence/task-001/trace-008_input_date.html"
  },
  "output": {
    "data": {
      "action_type": "type",
      "target_selector": "//*[@id='checkInDate']",
      "input_value": "12/01/2025"
    }
  },
  "metadata": {
    "execution_time_ms": 200,
    "tool": "IG/ActionExecutor"
  }
}
```

Step 9: Action Execution (Submit Form)

Context: All fields are filled. The BI agent commands the click of the "Check Availability" button.

```
{
  "id": "log-009",
  "tool_name": "IdentifyClickButton",
```

```
    "task_id": "task-uuid-hotel-001",
    "trace_id": "trace-009",
    "status": "success",
    "timestamp": "2025-11-25T10:00:16.500Z",
    "received_at": "2025-11-25T10:00:17.500Z",
    "confidence_score": 0.98,
    "message": "Form submission triggered",
    "evidence": {
      "screenshot_path": "evidence/task-001/trace-009_submit.png",
      "dom_snapshot": "evidence/task-001/trace-009_results.html",
      "notes": "Page transitioned to /search-results. Loading spinner detected and finished."
    },
    "output": {
      "data": {
        "action_type": "click",
        "target_selector": "//*[@id='search-rooms-btn']",
        "post_action_url": "https://www.sunshine-inn-orlando.com/search-results?date=..."
      }
    },
    "metadata": {
      "execution_time_ms": 1200,
      "tool": "IG/ActionExecutor"
    }
}
```

Phase 5: Verification

Step 10: Data Processing (Final Confirmation)

Context: The BI agent needs to confirm that rooms are actually available for those dates. It captures the result page and asks the Processing module to extract the confirmation status.

```
{
  "id": "log-010",
  "tool_name": "DataProcessingModule",
  "task_id": "task-uuid-hotel-001",
  "trace_id": "trace-010",
  "status": "success",
  "timestamp": "2025-11-25T10:00:18.000Z",
  "received_at": "2025-11-25T10:00:18.450Z",
  "confidence_score": 0.99,
  "message": "Extracted availability status",
  "evidence": {
    "screenshot_path": "evidence/task-001/trace-009_submit.png",
```

```
      "dom_snapshot": "<div class='success'>3 Rooms Available for Dec 1 - Dec 3</div>",
      "notes": "High text overlap with query keywords."
    },
    "output": {
      "data": {
        "question": "Are rooms available for the selected dates?",
        "answer": "Yes, 3 Rooms Available",
        "source_node_xpath": "//*[@class='success-message']",
        "is_match": true
      }
    },
    "metadata": {
      "execution_time_ms": 450,
      "tool": "IG/Processing"
    }
}
```