ServiceNow Flow Designer — Detailed Notes

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1. What is Flow Designer?

- **Flow Designer** is a **no-code/low-code automation tool** in ServiceNow used to create **automated workflows**.
- It enables building complex workflows that automate tasks, integrate systems, and orchestrate business processes.
- It replaces older Workflow Editor with a modern, easier-to-use interface.
- Built on the Now Platform® with native support for tables, records, and integrations.

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2. Key Components of Flow Designer

a) Flows

- The main automation container.
- A flow consists of a sequence of steps, including triggers and actions.
- You can create multiple flows for different processes.

b) Triggers

- Event or condition that **starts** the flow.
- Types of triggers:
  - **Record** (Create, Update, Delete, Query)
  - **Schedule** (Run at a specific time)
  - **Application Event** (Custom events)
  - **REST API** (Inbound API calls)
  - **Flow Designer Trigger** (Other flows or scripts can trigger)

c) Actions

- Predefined or custom steps executed inside flows.
- Types include:
  - Record operations (create, update, delete)

- Notifications (email, SMS)
- Approvals (request approvals)
- IntegrationHub actions (call external APIs)
- Script Actions (for custom JavaScript logic)

d) Subflows

- Modular reusable flows.
- Can be called from multiple parent flows.
- Helps maintain DRY (Don't Repeat Yourself) principle.

e) Inputs & Outputs

- Flows and subflows can accept **inputs** (parameters) and produce **outputs**.
- Enables parameterization and data passing between flows and actions.

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3. How Flow Designer Works

- User creates a flow → selects a **trigger** → defines the **sequence of actions** to execute → saves and activates.
- Flow Designer runs in the background when triggered.
- Actions execute in order or based on conditions.

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4. Creating a Flow — Step-by-Step

1. **Open Flow Designer**
   - Navigate: All > Flow Designer
2. **Create New Flow**
   - Click "New"
   - Name your flow and add description.
3. **Add a Trigger**
   - Select trigger type (e.g., Record created in Incident table).

4. **Add Actions**
    - Use the action picker to add actions such as "Create Record", "Send Email", or custom actions.
5. **Configure Each Action**
    - Map fields, set values, configure conditions.
6. **Add Conditions & Branching (If needed)**
    - Use "If" or "Switch" steps to branch logic.
7. **Test the Flow**
    - Use the Test button to simulate execution.
8. **Activate Flow**
    - Once tested, activate for production use.

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5. Action Types and Examples

Action Type	Example Use Case
Create Record	Automatically create an Incident on request submission
Update Record	Update Priority field based on impact and urgency
Approval	Request manager approval on Change request
Notifications	Send email/SMS on Incident assignment
IntegrationHub Calls	Call external REST APIs for data synchronization
Script Action	Run custom JavaScript for advanced logic

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6. IntegrationHub & Flow Designer

- **IntegrationHub** extends Flow Designer capabilities.
- Provides pre-built **spokes** for third-party services (Slack, Jira, MS Teams, etc.).
- Enables calling **REST, SOAP, JDBC, and custom APIs**.

- Allows secure credential handling and connection management.

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7. Variables and Data Handling

- **Data Pills** are tokens representing data from triggers or previous actions.
- Use Data Pills to map dynamic data between steps.
- Can manipulate data using "Transformations" like string operations or math functions.

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8. Error Handling & Logging

- Flows support error handling via:
  - **Try-Catch** like branching to manage failures.
  - Logging errors for later troubleshooting.
- Use **Flow Execution Details** to debug flow runs.

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9. Best Practices

- Use **Subflows** for reusable logic.
- Keep flows **modular and simple**.
- Use **clear naming conventions** for flows, actions, and variables.
- Document your flow steps with descriptions.
- Test thoroughly in a sub-production environment.
- Use **conditions and branching** to avoid unnecessary executions.
- Monitor **Flow execution logs** for errors or optimization.

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10. Use Cases

- Automating Incident and Change Management processes.
- Emergency Incident Escalation & Remediation Automation.

- User onboarding/offboarding workflows.
- Auto-assigning tasks based on data conditions.
- Integration orchestration with external systems.
- Scheduled reports and notifications.

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11. Advantages Over Classic Workflow Editor

Flow Designer	Classic Workflow Editor
No-code/low-code interface	Mostly drag & drop with scripting
Supports reusable subflows	Less modular
Built-in IntegrationHub support	Requires custom scripting/integration
Version control and better debugging	Limited debugging tools
Easier for non-developers to use	Requires development skills

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12. Summary

Flow Designer is a powerful automation engine designed to simplify complex workflows with minimal coding. It brings agility, reusability, and easy integration capabilities to your ServiceNow implementation, making process automation accessible to both developers and business users.

Detailed Use Case — Extended Version

Use Case Name: Emergency Incident Escalation & Remediation Automation

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Business Problem:

High-impact IT incidents need faster resolution and immediate attention from the right teams with proper funding and tracking. Manual processes cause delays, miscommunication, and poor audit trails.

Business Goals:

- Assign emergency incidents automatically.
- Notify key stakeholders instantly via multiple communication channels.
- Automatically create related Change Requests to track fixes.
- Incorporate approvals for emergency spending.
- Log activities for compliance and reporting.

Flow Steps and Logic:

Step No	Step Description	ServiceNow Action/Feature
1	**Trigger on Incident creation or update** with Priority 1 & Impact High.	Record Insert/Update trigger
2	Check incident is in emergency category (optional advanced condition).	Conditional logic inside flow
3	Assign the Incident to the **Emergency Response Team** automatically.	Update Record action
4	Collect Incident details dynamically (Incident number, description, assigned group).	Data pills usage
5	Send an **email notification** to Incident Manager and Emergency Team with incident details.	Email notification action
6	Send a **Slack message** (via IntegrationHub Slack spoke) to #emergency-incidents channel.	Slack API action
7	Create a **linked Change Request** with references to Incident for remediation tracking.	Create Record action

Step No	Step Description	ServiceNow Action/Feature
8	Launch **Approval Request** for emergency funding, assigned to Finance Manager group.	Approval action
9	If Approval is rejected, notify Incident Manager and pause further remediation workflows.	Conditional logic & notification
10	Log the entire sequence of actions in a **custom Audit Log table** for compliance reporting.	Create Record action
11	Optionally, add a **timer** or scheduled wait for periodic status updates (e.g., every 2 hours).	Wait condition and scheduled triggers
12	Send summary notification to IT Leadership after approval and remediation steps start.	Email notification

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Extended Flow Designer Functionalities:

- **Branching Logic:** Different paths based on approval or incident status.
- **Looping:** If multiple teams need notification in sequence.
- **Error Handling:** Use try/catch blocks (in IntegrationHub actions) to handle API failures gracefully.
- **Subflows:** Modularize common actions like notifications and approvals to reuse across other flows.
- **Inputs & Outputs:** Parameterize flows so the same flow can be triggered by multiple incident types or priorities.

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6. Implementation Details

Triggers:

- Trigger on Incident Table.
- Trigger Condition: Priority = 1, Impact = High.

Actions:

- **Update Record:** Assign Incident.
- **Send Email:** Use ServiceNow Email templates.
- **Send Slack Message:** Use IntegrationHub Slack spoke, requires OAuth configuration.
- **Create Record:** Change Request, populate required fields dynamically.
- **Approval:** Use Approval API to create approval request.

- **Log Audit:** Custom table for tracking flow activity.

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7. Advanced Tips

- **Use Scoped Applications:** Develop flow in scoped app to keep it modular.
- **Version Control:** Keep versions of flow as flow design evolves.
- **Debugging:** Use Flow Designer's Execution Details to debug and troubleshoot.
- **Performance Optimization:** Avoid unnecessary actions and large loops; use conditions early.
- **Documentation:** Maintain clear documentation for each flow and subflow for team handoff.

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8. Benefits of Flow Designer over Workflow Editor

Feature	Flow Designer	Workflow Editor
User Experience	Modern, drag-and-drop UI	Older, less intuitive UI
Extensibility	Supports IntegrationHub spokes	Limited integration options
Reusability	Subflows and reusable actions	Subflows but less flexible
Low Code	Designed for no/low code	Requires scripting for complex flows
Debugging	Built-in flow execution logs	Limited debug capabilities

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9. Summary

Flow Designer is a powerful automation and integration tool in ServiceNow that can streamline complex business workflows with ease. The Emergency Incident Escalation use case demonstrates how Flow Designer enables real-time automated assignment, multi-channel notifications, change management, approval workflows, and audit logging — all without heavy custom scripting.
